```
Title:
Perfect score:
Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OM nucleic - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            February 13, 2004, 08:23:26; Search time 9384 Seconds (without alignments) 11225.734 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IDENTITY_NUC Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-09-836-613-1
2575
1 CCCGGGCTTAGCCTTCGGGT.....AGTCGAGCGGCCGCGAATTC 2575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2888711 segs, 20454813386 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GenEmbl: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GenCore version 5.1.6
Copyright (c) 1993 - 2004 Compugen Ltd.
em_b1:*
em_sts:*
em_sts:*
em_sts:*
em_un:*
em_htg_hum:*
em_htg_linv:*
em_htg_linv:*
em_htg_mam:*
em_htg_mam:*
em_htg_mam:*
em_htg_mam:*
em_htg_mam:*
                                                                                                                                                                                                                                        em_or: *
em_ov: *
em_pat: *
                                                                                                                                                                                                                                                                                                                                       gb_ro:
gb_sy:*
gb_un:*
gb_un:*
em_ba:*
em_fun:*
                                                                                                                                                                                                                                                                                             em_mu:*
                                                                                                                                                                                                                                                                                                                         em_in:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5777422
```

Pred. No.

is the number of results predicted by chance to have a

score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

TITLE	REFERENCE AUTHORS	SOURCE ORGANISM	ACCESSION VERSION	AR160672 LOCUS	RESULT 1		4.5	4 4 4 4 4 4 4	0 44	4 L 0 V	ω ι 00 ·	3 G	G C	υw	32 22	30	2 Z 9 E	งผา	ი ი 25	N	222	21	19	17	16	44.1	ωĸ	, р.	9 0				w		Result No.
Synthe		급합.	N AR16067				79.2		9	9 1	ີຂໍ	142.4	5 5 ×	72.	79.	09.	υ α α σ	96	69.	69.	9.6	584.2	65.	74.	74.	874.	14.	415	426.	26.	623.	244	45	2575 2575	. R
8 0	2, C.	h	.000	0672			3 · 1	υωυ 	<u>.</u> ;	<u>.</u> .	, i	່ນ ເກ		ν.,	o i	1 00	::	٠٢:	44	4-4	4.4	26.7	ω.	4. h		4.	ω.	UI L	ກຸເກ	ហ ប ហ ប 	ι ω	o у	95.	100.0	Query
mammalia encoding	i to 25 Joseph.	L.	GI:1	from			93	159790	109	268	121	176 175	992	033 444	995	1054	63 6	245	649 803	07	275 689	21	517	864	8155	772	294	453	199	ω F	245	94	5	2575 2575	Length
6 3	, S		5225	patent			N	N N C	11	N	·ω	νμ	1-1	ب د	Р Р	بر د	ω α	00	ww	ωı	vω	σ E	201	2 20	10	10	UT V	N	oω	ማ ወ	10	ω ω	w	დი	BB
.alphan-acety ame	cott,H.Steele.,		US .	2575 bp nt US 6255096.		ALIGNMENTS		AP004786 AC139773		AC113344					AE011700				AC092234 AE003621		AY058738 AC018157		AC098921	BX323890	AC069014	Α.	AF331668	AC002537	HSU34879	AR160673	MMU85247	HUMUFHSA	357	AR160672 HSU40846	ID
acetylglucosaminidase	, Weber,B.			DNA 1																															; ; ; ; ; ;
minidase and	., Blanch, L.			linear PAT			AC101261	178	3519	334	2931	9 6	0	ວິດ	770	2 7	96	27	362	4 4	873 815	AF331669	9	7.00	690	, ω	ωĸ		o o	AR160673	7.	44 17	w	AR160672 U40846 H	Descript
genetic	and .			17-OCT-2001			ᇐ.	Oryza s	6 Penic	Macaca	Homo	Bacteroid Homo sapi	Streptomy	Bacteroid	Xantho	Caulobact	icotiana t	Arabidops	Drosophi	Drosoph	Drosophi	Dromaius	Sn	O Mus muscu	3 8	1 2	naius		uman 17-b Homo san	Sec	ns m	Human alpha Human alpha	Þ	'2 Sequence Human alpha	ion

QY 841 GGCATGTTCCCGAGGCTGTCACCAGGGTGTTCCCTCAGGTCAATGTCACGAAGATGGGCA 900	Oy 781 ACCGGGTCCTGGACCAGATGCGCTTCCGTCGTGATGACCCCAGTGCTGCCTGC	Qy 721 TGCACACCTGGGATGGCCCCCTGCCCCCTCCTGGCACATCAAGCAGCTTTACCTGCAGC 780	Qy 661 CAGAGATCAATGAGTTCTTTACTGGTCCTGCCTTGCCTGGGGGGGG	Qy 601 CCTGGAGCGGCCAGGAGGCCATCTGGCAGGGTGTACCTGGCCTTGGGCCTGACCCAGG 660	GGGCCCGCTGGGAGCGAGAGATAGACTGGATGGCTGAATGGCATCAACCTGGCACTGG	Qy 481 ACAGGTACCGCTATTACCAGAATGTGTGCACGCAAAGCTACTCCTTCGTGTGGTGGAGACT 540	QY 421 AGCTGCGCCTGCCGGGCCACTGCCAGCCGTGCCGGGGGAGCTGACGGAGGCCACGCCCA 480	QY 361 CGGGGCTGCACCGCTACCTGCGGACTTCTGTGGCTGCCACGTGGCCTGGTCCGGCTCTC 420	Qy 301 TGGGCGGCGGCGGCGGCGCGTGCGGGTGCGGGCTCCACGGGCGTGGCGGCCGCCG 360	Qy 241 ACTTCTCCGTGTCGGTGGAGCGCGCTCTGGCTGCCAAGCCGGCTTGGACACCTACAGCC 300	Db 181 GGGAGGCGGCCGGGCGGCCGCCGGCCGCCGCGCGCGCGC	QY 121 CCGCGGCGGTGGGGGTCCTTCTCCTGGCCGGGGGCCGGGGGG	Qy 61 CCCCACCCCTGGCCGTCGCGGGACCCGCAGGACTGAGACCATGGAGGCGGTGGCGGTGG 120	.GGCCGGCAGCTGATTGGACGCGGG 	Query Match 100.0%; Score 2575; DB 6; Length 2575; Best Local Similarity 100.0%; Pred. No. 0; Matches 2575; Conservative 0; Mismatches 0; Indels 0; Gaps 0;	.e 440 a	JOURNAL Patent: US 6255096-A 1 03-JUL-2001; FEATURES Location/Oualifiers
	Oy 1861 AGCTGGCCTCCCTGTTGAGGCGTCCTGGCCTATGAGCTGCTGCCGGCACTGG 1920	1801 CAGTGCAGGAGCTGGTCAGCTTGTACTATGAGGAGGCGAAGAAGCGCCTACCTGAGCAAGG	41 CTCCCTCCTGGCCACCAGCCCCGCCTTCCGCTACGACCTGGACCTCACTCGGCAGG 1	1681 CCAGCATCTGGTACAACCGATCTGATGTGTTGAGGCCTGGCGGCTGCTCACATCTG 17	1621 AGGCTGCAGGGGCCACAATCGTAGCCCGCTGGTCAGGCGGCCGTCCCTACAGATGAATA 1	Oy 1561 ACCCGAACGCAAGGCAACGCTACTGCTCCGGAGTGTTTACAACTGCTCCGGGG 1620	1501 CAGTGCCAGATTTGGCAGCCTGGGTGACCAGCTTTGCCGCCCGGGGTATGGGGTCTCCC 1 1501 CAGTGCCAGATTTGGCAGCCTGGGTGACCAGCTTTGCCGCCCGGCGGTATGGGGTCTCCC 1	1441 GCATCAGCCAGAACGAAGTGGTCTATTCCCTCATGGCTGAGCTGGCGCAGAGGACC 15	1381 CAGAAGCTGCCCGCCTCTTCCCCAACTCCACCATGGTAGGCACGGCGCATGGCCCCGAGG	21 TGCACAACTTTGGGGGAAACCATGGTCTTTTTGGAGCCCTAGAGGCTGTGAACGGAGGCC		1201 GAGCTGTGCTGGGAACTGTGCCCCGTGCTCCTGGTTCTGGAACCTGTTTGCTGAGA	1141 GGCTGCTCCAAGGCTGCTTCCAAGCAGCGGCAGTTCTGGGGGGCCCGCCC	1081 TTGCCGCAGCCACCACTGCGTCTATGAGGCCATGACTGCAGTGGATACTGAGGCTGTGT	1021 ACATCTATGGGGCCGACACTTTCAATGAGATGCAGCCACCTTCCTCAGAGCCCTCCTACC	61 61	Db 901 GTTGGGGCCACTTTAACTGTTCCTACTCCTGCTCCTTCCT

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                           REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 2
HSU40846
LOCUS
                                                                                                                                                                                                                                                                                                                                                                          VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                      DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     B,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                        FEATURES
                                                                                                                                                                                                                     JOURNAL
MEDLINE
PUBMED
                                                                                                                                                                 JOURNAL
 CDS
                          gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2161
                                                                                                                                                                                                                                Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

1 (bases 1 to 2575)

Weber, B., Blanch, L., Clements, P.R., Scott, H.S. and Hopwood, J.J.

Cloning and expression of the gene involved in Sanfilippo B syndrome (mucopolysaccharidosis III B)

Hum. Mol. Genet. 5 (6), 771-777 (1996)

96372812
                                                                                                                                                                                                                                                                                                                                                                                                   2575 bp thuman alpha-N-acetylglucosaminidase U40846
                                                                                                                                        Direct Submission
Submitted (17-NOV-1995) Birgit Weber, Chemical Pathology, Women's
Submitten's Hospital, King William Street 72, North Adelaide, S.A.
                                                                                                                                                                                          Weber, B.,
                                                                                                                                                                                                                                                                                                                                                Homo
                                                                                                                                                                                                                                                                                                                                                                                         U40846.1 GI:1197839
                                                                                                                                                                                                                                                                                                                                                             Homo sapiens (human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCTGGGGGGATTGGAGGGAAATGACCTGCCCTCCACCACCACCAAAGTGTGGGGATTAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CAGACATCACAGGATAACCCAGGCCTGGGAGGAGGCCCCACGGCCTGCTGGTGGGGTCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CAGACATCACAGGATAACCCAGGCCTGGGAAGGAGGCCCCACGGCCTGCTGGTGGGGTCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCCACCACTGGGCCTTGTTTTCCGCTAATTCCAGGGCAGATTCCAGGGCCCAGAGCTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCAAGAAGATCTTCCTCAAATATTACCCCGGCTGGGTGGCCGGCTCTTGGTGATAGATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCTTCGTTCTCAGCAAGCAGAGGTACCCCAGCCAGCCGGAGGAGACACTGTGGACCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCCAGGGCATCCCTTTCCAACAGCACCAGTTTGACAAAATGTCTTCCAACTGGAGCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGGCCAÁCTACACCCCTCGCTGGCGGCTTTTCCTGGAGGCGCTGGTTGACAGTGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGGCCAACTACTACACCCCTCGCTGGCGGCTTTTCCTTGGAGGCGCTGGTTGACAGTGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCTTGTGGGGGCCAGAAGGCAACATCCTGGACTATGCCAACAAGCAGCTGGCGGGGTTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCTTGTGGGGGCCAGAAGGCAACATCCTGGACTATGCCAACAAGCAGCTGGCGGGGTTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AGTACTGTTTTCTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCTGGGGGGATTGGAGGGAAATGACCTGCCCTCCACCACCACCCAAAGTGTGGGATTAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCCACCACTGGGCCTTGTTTTCCGCTAATTCCAGGGCAGATTCCAGGGCCCAGAGCTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCAAGAAGATCTTCCTCAAATATTACCCCGGCTGGGTGGCCGGCTCTTGGTGATAGATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCTTCGTTCTCAGCAAGCAGAGGTACCCCAGCCAGCCGAGGAGAGACACTGTGGACCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCCAGGGCATCCCTTTCCAACAGCACCAGTTTGACAAAAATGTCTTCCAACTGGAGCAGG
                                                                                                                                                                                       (bases 1 to 2575)
Der, B., Scott, H. and Hopwood, J.J.
                                                                                                                                                                                                                                                                                                                                                sapiens
                                                                                                                                       Australia
                                      /organism="Homo sapiens"
/mol type="mRNA"
/db_xref="taxon:9606"
/chromosome="17"
/map="17q12-21"
/gene="NAG"
102. .2333
                                                                                                                        Location/Qualifiers
                           .2575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCACTTAAAAAAAAAAAAAAGTCGAGCGGCCGCGAATTC
                                                                                                                                                                                                                                                                                                                                                                                                                  mRNA
e (NAG)
                                                                                                                                                                                                                                                                                                                                                                                                                 mRNA,
                                                                                                                                                                                                                                                                                                                                                                                                                               linear
                                                                                                                                                                                                                                                                                                                                                                                                                  complete
                                                                                                                                                                                                                                                                                                                                                                                                                              PRI 15-AUG-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2100
                        밁
                                                 S
                                                                          뮍
                                                                                                   S
                                                                                                                                    밁
                                                                                                                                                        S
                                                                                                                                                                                         밁
                                                                                                                                                                                                               5
                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  뮹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BASE COUNT
ORIGIN
```

```
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2575;
                                                      541
                                                                                              541
                                                                                                                                   481
                                                                                                                                                                           481
                                                                                                                                                                                                                     421
                                                                                                                                                                                                                                                                                                      361
                                                                                                                                                                                                                                                                                                                                            361
                                                                                                                                                                                                                                                                                                                                                                                     301
                                                                                                                                                                                                                                                                                                                                                                                                                             301
                                                                                                                                                                                                                                                          421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             j..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity
                                                                                     GGGCCCGCTGGGAGCGAGAGATAGACTGGATGGCGCTGAATGGCATCAACCTGGCACTGG
CCTGGAGCGGCCAGGAGGCCATCTGGCAGCGGGTGTACCTGGCCTTGGCCTGACCCAGG
                                                    GGGCCCGCTGGGAGCCGAGAGATAGACTGGATGGCGCTGAATGGCATCAACCTGGCACTGG
                                                                                                                                                                                                                                                                                                                                              CGGGGCTGCACCGCTACCTGCGCGACTTCTGTGGCCTGCCACGTGGCCTGGTCCGGCTCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGGAGGCGGCGGCGTGCGGGCTCGTGGCCCGGCTGCTGGGGCCAGGCCCCGCGGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCCCACCCCTGGCCGTCGCGGGACCCGCAGGACTGAGACCATGGAGGCGGTGGCGGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCCCACCCCTGGCCGTCGCGGGACCCGCAGGACTGAGACCATGGAGGCGGTGGCGGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCCGGGCTTAGCCTTCGGGTCCACGTGGCCGGAGGCCGGCAGCTGATTGGACGCGGGCCG
                                                                                                                                   ACAGGTACCGCTATTACCAGAATGTGTGCACGCAAAGCTACTCCTTCGTGTGGGGACT
                                                                                                                                                                           ACAGGTACCGCTATTACCAGAATGTGTGCACGCAAAGCTACTCCTTCGTGTGGGGACT
                                                                                                                                                                                                                                                          AGCTGCGCCTGCCGGCCACTGCCAGCCGTGCCGGGGAAGCTGACCGAGGCCACGCCCA
                                                                                                                                                                                                                                                                                                      ceeeecrecaccecraccrececeacrrcrereecreccacereeccreercceecrcre
                                                                                                                                                                                                                                                                                                                                                                                        <u> TGGGCGGCGGCGCGCGCGCGTGCGGGTGCGCGCTCCACGGGCGTGGCGGCCGCCG</u>
                                                                                                                                                                                                                                                                                                                                                                                                                      ACTTCTCCGTGTCGGTGGAGCGCGCTCTGGCTGCCAAGCCGGGCTTGGACACCTACAGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACTTCTCCGTGTCGGTGGAGCGCGCTCTGGCTGCCAAGCCGGGCTTGGACACCTACAGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGGAGGCGGCGGTGCGGGCCTCGTGGCCCGGCTGCTGGGGCCAGGCCCCGCGGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCCGGGCTTAGCCTTCGGGTCCACGTGGCCGGAGGCCGGCAGCTGATTGGACGCGGGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HIKQLYLQHRVLDQMRSFGMTPVLPAFAGHVPEAVTRVFFQVNVTKMGSWGHFNCSYS
CSFLLAPEDPIFPIIGSLFLRELIKEGTDHIYGADTENEMQPESSESYLAAATTAV
YEAMTAVDTEAVWLLQGMLFQHQPGFWGPAQIRAVLGAVFRGRLLVLDLFAESQPVYT
RTASFQQQFFIMCMLHNFGGNHGLFGALEAVNGGPBAARLFPNSTMVCTGMAEEGISQ
NEVYYSLMAELGWRKDPVFDLAWVTSFAARRYGVSHPDAGAAWRLLLRSVYNCSGEA
CRGHNRSPLVRRYSLQMNTSIWYNRSDVFEAMRLYGLAFADFLAFSPAFRYDLLDLTRQ
AVQELVSLYYEEBARSAYLSKELASLLRAGGULAYELLFALDEVLASDSFFYDLLDSVLO
ARQAAVSEAEADFYEQNSRYQLTLWGPEGNILDYANKQLAGIVANYYTFRWRLFLEAL
VDSVAQGIPFQQHQFDKNVFQLEQAFVLSKQRYPSQPRGDTVDLAKKIFLKYYPGWVA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AADFSVSVERALAAKPGLDTYSLGGGGAARVRVRGSTGVAAAAGLHRYLRDFCGCHVA
WSGSQLRLPRPLPAVPGELTEATPNRYRYYQNVCTQSYSFVWWDWARWEREIDWMALN
GINLALAWSGQEAIWQRVYLALGLTQAEINEFFTGPAFLAWGRWGNLHTWDGPLPPSW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="deficient in Sanfilippo B syndrome"
/codon_start=1
/product="alpha-N-acetylglucosaminidase"
/protein_id="AAB06188.1"
/db_xref="GI:1197840"
/translation="MEAVAVAAAVGYLLLAGAGGAAGDEAREAAAVRALVARLLGPGP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EC_number="3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            o
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       °.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            833
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score
Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .2.1.50"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           No. 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                               480
               660
                                                      600
                                                                                              600
                                                                                                                                      540
                                                                                                                                                                           540
                                                                                                                                                                                                                     480
                                                                                                                                                                                                                                                                                                    420
                                                                                                                                                                                                                                                                                                                                            420
                                                                                                                                                                                                                                                                                                                                                                                     360
                                                                                                                                                                                                                                                                                                                                                                                                                             360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
```

CAGAGATCAATGAGTTCTTTACTGGTCCTGCCTTGCCTGGCCTGGGGGCGAATGGGCAACC

1501 CAGTGCCAGATTTGGCAGCCTTGATCAGCTTTTGCCGCCGGGGTATTGGGGTCTCCC 1560 1501 CAGTGCCAGATTTGGCAGCCTTGGTACCAGCTTTTGCCGCGGGGTATTGGGGTCTCCC 1560 1501 CAGTGCCAGATTTGGCAGCCTTGGTAACCAGCTTTGCCGCGGGTATTGGGGTCCCCC 1560 1561 ACCCGGACGCAGGGGCAGCGTTGGAGGCTACTGCTCCGGAGTGTGTACAACTGCTCCGGGG 1620 1561 ACCCGGACGCAGGGCAGCGTTGGAGGCTACTGCTCCGGAGTGTGTACAACTGCTCCGGGG 1620 1621 AGGCCTGCAGGGGCCACAATCGTAGCCCGCTTGCTCAGAGTGATCAATA 1680 1621 AGGCCTGCAGGGGCCACAATCGTAGCCCGCTGGTCAGGGGGCCTCCCTACAGATGAATA 1680 1621 AGGCCTGCAGGGGCCACAATCGTAGCCCGGCTGGTCAGGGGGCCTCCCTACAATCATA 1680 1621 AGGCCTCCAGGGGCCACAATCGTAGCCCGGCTGGTCAGGGGGCCTCCCTACAATCATCTTG 1740 1681 CCAGCATCTGGTACAACCGATCTGATGTTTTGAGGCCTTGGCTGGC	721 TGCACACCTTGGAATGGCCCCTTCCTGGCCACCTTCCTGGCACATCAAGGAGCTTTACCTGCACC 720 721 TGCACACCTTGGAATGGCCCCCTCCTGCCACCTCCTGGCACATCAAGGAGCTTTACCTGCACC 780 721 TGCACACCTTGGAACAAGTGGCCCCCTCCTTGGCACATCAAGCAGCTTTACCTGCACC 780 721 TGCACACCTTGGAACAAGTGGCCCCCTCCTTCGGCACATCAAGCAGCTTTACCTGCACC 780 721 TGCACACCTTGGAACAAGTGGCCCCCTCCTTCGGCACATCAAGCAGCTTTACCTGCACC 780 722 TGCACACCTTGGAACAAGTGGCCCCCTTCCTGGCACATCATCAAGCAGCTTTACCTGCACC 840 841 GCCATGTTCCCGAGGCTTTCACCAGGGTTTCCCCCAGTGCTCATCCCGAAAGTGGGCA 900 841 GCCATGTTCCCGAGGCTTTAACTGTTCCTCAGGCACATCCTCCTCCTGGAAAAGCCCCA 960 901 GTTGGGGCACCACTTTAACTGTTCCTACCAGGGCTTCCTTC
·	
RESULT 3 HSU43573 LOCUS DEFINITION ACCESSION VERSION VERSION KEYWORDS SOURCE ORGANISM REFERENCE AUTHORS TITLE JOURNAL MEDLINE PURMED REFERENCE AUTHORS	8
HSU43573 Human alpha-N-acetylglucosaminidase (NAGLU) mRNA, complete cds. U43573 U43573 U43573 U43573 Homo sapiens (human) Homo sapiens Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Eukaryota; Metazoa; Chordata; Craniata, Fominidae; Homo. 1 (bases 1 to 2458) Zhao,H.G., Li,H.H., Bach,G., Schmidtchen,A. and Neufeld,E.F. The molecular basis of Sanfilippo syndrome type B Proc. Natl. Acad. Sci. U.S.A. 93 (12), 6101-6105 (1996) 96234097 8650226 2 (bases 1 to 2458) 2 hases 1 to 2458) 2 chases 1 to 2458	1801 CAGTGCAGGAGCTGGTCAGCTTGTACTATGAGGAGGCAAAGAAGGCCCTACCTGAGCCAAGG 1801 CAGTGCAGGAGCTGGTCAGCTTGTACTATGAGGAGGCAAAGAAGGCCCTACCTGAGCAAGG 1801 CAGTGGCCGCCTCCTGTTTAGAGGCTGGAGGCAAAGAAGGCCCTACCTGAGCAAGG 1801 CAGTGGCCGCCTCTGTTTAGAGGCTGGAGGCAAGAAGAAGGCCCTACCTGAGCAAGG 1801 AGCTGGCCTCCCTGTTGAGGGCCTGAAGGCTGCTGGCTATGAGCTGCTGAGCAAGG 1801 ACGAGGTGCTGGCTAGTACACCCGCTTCTTGTGGTGGCAAGACTGGCTAAGACACCGCAACTG 1921 ACGAGGTGCTGGCTAGTACACCGCCTTCTTGTGTGGCAGCAGACAAGCAGCAGCCCCAAG 1981 CAGCGGCAGTCAGTAGACACCGCCTTCTTGTGTGGGCAAGACACAGCCGCTACAGCAGCACCAGCTG 1982 ACGAGGTGCATCAGTAGGCCCAACTTCTCTACAGAGCAAGCA

멍 Ś 밁 Š В Ś 멂 Ş 밁 Ş 뮍

Š

Ş 밁 Ś 멍 Ş 밁 Ś 밁 Ś Б δ ₽

В Ş 밁 Ş d Ş Вb .5 B . 8 B Ş 맑

```
8
                                                                                                                                                                                                                                                                                                                              8
                δ
                                                         유
                                                                                                          В
                                                                                                                                          Ş.
                                                                                                                                                                              В
                                                                                                                                                                                                  8
                                                                                                                                                                                                                                           멍
                                                                                                                                                                                                                                                                                            뫄
                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
Matches 2455; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SGC
361
                          462
                                                          301
                                                                                        402
                                                                                                                   241
                                                                                                                                                  342
                                                                                                                                                                                 181
                                                                                                                                                                                                             282
                                                                                                                                                                                                                                            121
                                                                                                                                                                                                                                                                                                                                      162
                                                                                                                                                                                                                                                                                                                                                                                                  102
                                                                                                                                                                                                                                                                                                         61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Direct Submission
Submitted (19-DEC-1995) Hong G. Zhao, Biological
10833 Le Conte Ave., Los Angeles, CA 90095, USA
Location/Qualifiers
                      CTGACCGAGGCCACGCCCAACAGGTACCGCTATTACCAGAATGTGTGCACGCAAAGCTAC
                                                                            GTGGCCTGGTCCGGCTCTCAGCTGCGCCTGCCGGGCCACTGCCAGCCGTGCCGGGGAG
                                                                                                                     ACGGGCGTGGCGGCGGGGGCTGCACCGCTACCTGCGCGACTTCTGTGGCTGCCAC
                                                                                                                                         ACGGGCGTGGCGGCCGCGGGGGCTGCACCGCTACCTGCGCGACTTCTGTGGCTGCCAC
                                                                                                                                                                                                             GGGCCAGGCCCGCGGCCGACTTCTCCGTGTCGGTGGAGCGCGCTCTGGCTGCCAAGCCG
                                                                                                                                                                                                                                                                                                         GCGGCAGGCGACGAGGCCCGGGAGGCGGCCGCTGCCGGCGCGCTCGTGGCCCGGCTGCTG
                                                                                                                                                                                                                                                                                                                           GCGGCAGGCGACGAGGCCCGGGAGGCGGCGGCCGGTGCGGGCGCCTCGTGGCCGGCTGCTG
                                                                                                                                                                                                                                                                                                                                                                     ATGGAGGCGGTGGCGGTGGCCGGCGGTGGGGGTCCTTCTCCTGGCCGGGGGCCGGGGGC
                                                                                                                                                                                 428
                                                                                                                                                                                                                                                                                                                                                                                                                              95.3%; Silarity 100.0%; I Conservative 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     YBAMTÄVDTEÄVMILQGMLFQHQPQFMGPAQIRAVLGAVPRGRLLVLLLEAESQPVYT
RTAS FQGQPFIMCMLINFGGNIGLEGALEAVNGGPEAALLPINSTMYGTGMAPBGISQ
NEVVYSIMAELGMRKLDPPDLLAMWTS FAARRYGVSHDDAGAAWRLLLESVYNCGSGA
CRGHNRS PLVRRPSLQMNTS I MYNRSDVFEAWRLLLTSAPSLATS PAFRYDLLDLTRQ
AVQELVIX YEEARS AYLS KELAS LLRAGGVLAY ELL PALDE VLAS DSR FLLGSWLEQ
ARAAN SEARS AFLSKELAS LLRAGGVLAY ELL PALDE VLAS DSR FLLGSWLEQ
ARAAN SEARD FY EQORRY QLLYGDEGNILDYANKQLAGIVANYY TPRATLFLEAL
RAAAN SEARD FY EQORRY QLEQAFVLS KQRYPSQ PRGDTVDLAKKI FLKYY PGWVA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GINLALAWSGQEAIWQRVYLALGLTQAEINEFFTGPAFLAWGRMGNLHTWDGPLPPSW
HIKQLYLQHRVLDQWRSFGMTPVLPAFAGHVPEAVTRVFPQVNVTKMGSWGHFNCSYS
CSFLLAPEDPLFPIIGSLFLRELIKEFGTDHIYGADTFNEMQPPSSEPSYLAAATTAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /function="one of four enzymes involved in the de
of heparan sulfate; specifically removes the
alpha-N-acetyldjucosamine residues"
/note="lysosomal enzyme; deficient in Sanfilippo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /translation="meavavaaavgvlllagaggaagdeareaaavralvarligege
aadesvsveralaakegldtyslggggaarvrvrgstgvaaaaglhrylrdegggva
wsgsqlrlereleavegelteatenryryvonvctosysevwwww.mereidwmaln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /codon_start=1
/product="alpha-N-acetylglucosaminidase"
/protein_ida"AAC50513.1"
/db_xref="GI:1171231"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /organism="Homo sapiens"
/mol_type="mRNA"
/db_xref="taxon:9606"
/chromosome="17"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="NAGLU"
/EC_number="3.2.1.50"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene="NAGLU"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              map="17g21"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .2458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ssue_type="testis"
2458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           a
                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 2455;
Pred. No. 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        789 g
                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           468
                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           c
                                                                                                                                                                                                                                                                                                                                                                                                                                                             9
                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 2458;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Chemistry,
                                                                                                                                                                                                                                                                                                                                                                                                                              <u>..</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  degradation
                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     UCILA,
                           521
                                                                                        461
                                                                                                                   300
                                                                                                                                                  401
                                                                                                                                                                                                             341
                                                                                                                                                                                                                                            180
                                                                                                                                                                                                                                                                          281
                                                                                                                                                                                                                                                                                                         120
                                                                                                                                                                                                                                                                                                                                                                   60
                                                                                                                                                                                                                                                                                                                                                                                                  161
420
                                                         360
                                                                                                                                                                                240
                                                                                                                                                                                                                                                                                                                                      221
                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    片
             밁
                                   8
                                                                       B
                                                                                             S
                                                                                                                             뮍
                                                                                                                                                              Ś
                                                                                                                                                                                             뮍
                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                    片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5
              1441
                                                                                                                                                                                               1261
                                                                                                                                                                                                                              1362
                                                                                                                                                                                                                                                                                                                      1141
                                                                                                                                                                                                                                                                                                                                                     1242
                                                                                                                                                                                                                                                                                                                                                                                    1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1062
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            882
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            642
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   762
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                702
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGCATCAACCTGGCACTGGCCTGGAGCGGCCAGGAGGCCATCTGGCAGCGGGTGTACCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTGGATACTGAGGCTGTGTGGCTCCAAGGCTCTTCCAGCACCAGCCGCAGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAAGAGTTTGGCACAGACCACATCTATGGGGCCGACACTTTCAATGAGATGCAGCCACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCCTTGGGCCTGACCCAGGCAGAGATCAATGAGTTCTTTACTGGTCCTGCCTTCCTGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TCCTTCGTGTGGGGACTGGGCCCGCTGGGAGCGAGAGATAGACTGGATGGCGCTGAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TCCTTCGTGTGGGACTGGGCCCGCTGGGAGCGAGAGATAGACTGGATGGCGCTGAAT
              CGGCGGTATGGGGTCTCCCACCCGGACGCAGGGGCAGCGTGGAGGCTACTGCTCCGGAGT
                                       CGGCGGTATGGGGTCTCCCACCCGGACGCAGGGGGAGGCTAGGAGGCTACTGCTCCGGAGT
                                                                                             CTGGGCTGGCGAAAGGACCCAGTGCCAGATTTGGCAGCCTGGGTGACCAGCTTTTGCCGCC
                                                                                                                                                         ACGGGCATGGCCCCCGAGGGCATCAGCCAGAACGAAGTGGTCTATTCCCTCATGGCTGAG
                                                                                                                                                                                               GAGGCTGTGAACGGAGGCCCAGAAGCTGCCCGCCTCTTCCCCAACTCCACCATGGTAGGC
                                                                                                                                                                                                                     GAGGCTGTGAACGGAGGCCCAGAAGCTGCCCGCCTCTTCCCCAACTCCACCATGGTAGGC
                                                                                                                                                                                                                                                             CCCTTCATCTGGTGCATGCTGCACAACTTTGGGGGGAAACCATGGTCTTTTTGGAGCCCTA
                                                                                                                                                                                                                                                                             CCCTTCATCTGGTGCATGCTGCACAACTTTGGGGGAAAACCATGGTCTTTTTGGAGCCCTA
                                                                                                                                                                                                                                                                                                                                              TGGGGGCCCGCCCAGATCAGGGCTGTGCTGGGAGCTGTGCCCCGTGGCCGCCTCCTGGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                GTGGATACTGAGGCTGTGTGGCTGCTCCAAGGCTGGCTCTTCCAGCACCAGCCGCAGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TCCTCAGAGCCCTCCTACCTTGCCGCAGCCACCACTGCCGTCTATGAGGCCATGACTGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TCCTCAGAGCCCTCCTACCTTGCCGCAGCCACCACTGCCGTCTATGAGGCCATGACTGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         <u>AAAGAGTTTGGCACAGACCACATCTATGGGGGCCGACACTTTCAATGAGATGCAGCCACCT</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTGGCTCCGGAAGACCCCATATTCCCCATCATCGGGAGCCTCTTCCTGCGAGAGCTGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GTGCTGCCTGCATTCGCGGGGCATGTTCCCCGAGGCTGTCACCAGGGTGTTCCCCTCAGGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GTGCTGCCTGCATTCGCGGGGCATGTTCCCGAGGCTGTCACCAGGGTGTTCCCTCAGGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAGCAGCTTTACCTGCAGCACCGGGTCCTGGACCAGATGCGCTCCTTCGGCATGACCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAGCAGCTTTACCTGCAGCACCGGGTCCTGGACCAGATGCGCTCCTTCGGCATGACCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCCTTGGGCCTGACCCAGGCAGAGATCAATGAGTTCTTTACTGGTCCTGCCTTCCTGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGCATCAACCTGGCACTGGCCTGGAGCGGCCAGGAGGCCATCTGGCAGCGGGTGTACCTG
                                                                         CTGGGCTGGCGAAAGGACCCAGTGCCAGATTTGGCAGCCTGGGTGACCAGCTTTGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTGGCTCCGGAAGACCCCATATTCCCCATCATCGGGAGCCTCTTCCTGCGAGAGCTGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGGGGGCGAATGGGCAACCTGCACACCTGGGATGGCCCCCTGCCCCCCCTCCTGGCACATC
                                                                                                                                                                                                                                                                                                                       rriecieagagecagecreretaracececaerecerectrecaggeceae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1121
                                                                         1440
                                                                                                                                                                    1481
                                                                                                                                                                                                                              1421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1001
                                            1601
                                                                                                      1541
                                                                                                                                     1380
                                                                                                                                                                                                                                                              1260
                                                                                                                                                                                                                                                                                          1361
                                                                                                                                                                                                                                                                                                                         1200
                                                                                                                                                                                                                                                                                                                                                      1301
                                                                                                                                                                                                                                                                                                                                                                                     1140
                                                                                                                                                                                                                                                                                                                                                                                                                   1241
                                                                                                                                                                                                                                                                                                                                                                                                                                                  1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     821
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                761
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            941
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   581
```

δ

뮍 Ś 뮍 S

ä

```
RESULT 4
HUMUFHS
LOCUS
DEFINITION
ACCESSION
VERSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1722
                                                                                                                                                                                                                                                                                                                                                                                                                     2281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1842
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1602
                                     2446 bp m
Human alpha-N-acetylglucosaminidase
L78464
L78464.1 GI:1479980
  Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAGCAGCTGGCGGGTTGGTGGCCCAACTACTACACCCCTCGCTGGCGGCTTTTTCCTGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCGTCCCTACAGATGAATACCAGCATCTGGTACAACCGATCTGATGTGTTTTGAGGCCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTGTACAACTGCTCCGGGGAGGCCTGCAGGGGCCACAATCGTAGCCCGCTGGTCAGGCGG
                                                                                                                                                                                                                                                            GGCCTGCTGGGGGGTCTGACCTGGGGGGGAATTGGGGGGAAATGACCTGCCCTCCACCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGAGACACTGTGGACCTGGCCAAGAAGATCTTCCTCAAATATTACCCCGGCTGGGTGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCGCTGGTTGACAGTGTGGCCCAGGGGCATCCCCTTTCCAACAGCACCAGTTTGACAAAAAT
                                                                                                                                                                                                                                                                                                                          GCCTGCTGGTGGGGTCTGACCTGGGGGGGATTGGAGGGAAATGACCTGCCCTCCACCACC
                                                                                                                                                                                                                                                                                                                                                                                                                     TCCAGGGCCCAGAGCTGGACAGACATCACAGGATAACCCAGGCCTGGGAGGAGGCCCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TCCAGGGCCCAGAGCTGGACAGACATCACAGGATAACCCAGGCCTGGGAGGAGGCCCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGCTCTTGGTGATAGATTCGCCACCACTGGGCCTTGTTTTTCCGCTAATTCCAGGGCAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGCTCTTGGTGATAGATTCGCCACCACTGGGCCTTGTTTTCCGCCTAATTCCAGGGCAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGAGACACTGTGGACCTGGCCAAGAAGATCTTCCTCAAATATTACCCCGGCTGGGTGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCGCTGGTTGACAGTGTGGCCCAGGGCATCCCTTTCCAACAGCACCAGTTTGACAAAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAGCAGCTGGCGGGTTGGTGGCCAACTACTACACCCCTCGCTGGCGGCTTTTTCCTGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AACAGCCGCTACCAGCTGACCTTGTGGGGGCCAGAAGGCAACATCCTGGACTATGCCAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AACAGCCGCTACCAGCTGACCTTGTGGGGGGCCAGAAGGCAACATCCTGGACTATGCCAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGGCTAGAGCAGGCCGAGCAGCGGCAGTCAGTGAGGCCGAGGCCGATTTCTACGAGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GAGCTGCTGCCGGCACTGGACGAGGTGCTGGCTAGTGACAGCCGCTTCTTGCTGGGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GAGCTGCTGCCGGCACTGGACGAGGTGCTGGCTAGTGACAGCCGCTTCTTGCTGGGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGCGCCTACCTGAGCAAGGAGCTGGCCTCCCCTGTTGAGGGCTGGAGGCGTCCTGGCCTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTGGACCTCACTCGGCAGGCAGTGCAGGAGCTGGTCAGCTTGTACTATGAGGAGGCAAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    сеестветелентелестестестеескассаессесттесестасеасть
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCGTCCCTACAGATGAATACCAGCATCTGGTACAACCGATCTGATGTGTTTGAGGCCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTGTACAACTGCTCCGGGGAGGCCTGCAGGGGGCCACAATCGTAGCCCGCTGGTCAGGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGGCTAGAGCAGGCCGAGCAGCGGCAGTCAGTGAGGCCGAGGCCGATTTCTACGAGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGCGCCTACCTGAGCAAGGAGCTGGCCTCCCTGTTGAGGGCTGGAGGCGTCCTGGCCTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTGGACCTCACTCGGCAGGCAGTGCAGGAGCTGGTCAGCTTGTACTATGAGGAGGCAAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ceecrecrecacarerecrecereeccaceaeccaceceecrreceeraceaecre
sapiens
  (human)
                                                                                           mRNA linear
e (ufHSD1) mRNA,
                                                                                                               25-NOV-1996
                                                                                                                                                                                                                                                                             2556
                                                                                                                                                                                                                                   2455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           . 1841
                                                                                                                                                                                                                                                                                                                                                                      2501
                                                                                                                                                                                                                                                                                                                                                                                                                                                               2441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1980
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1661
                                                                                                                                                                                                                                                                                                                          2400
                                                                                                                                                                                                                                                                                                                                                                                                                     2340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
AUTHORS
                                       Ś
                                                                                                                                                                                                                                                                                                                Ś
밁
                                                                                         문
                                                                                                                           5
                                                                                                                                                                                  В
                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                        멅
                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Sim
Matches 2446;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5'UTR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Bource
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SGD
                                            336
                                                                                           181
                                                                                                                                                                                    121
                                                                                                                                                                                                                                                                                                                       156
                                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                                                                                                                                                                     96
                                                                                                                                                                                                                                                                                                                                                                         μ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 96359157
8703123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Lee, C.C.
Molecular dissection of a cosmid from a gene-rich and characterization of a candidate gene for alpha-N-acety/glucosaminidase with two cDNA isofor Mamm. Genome 7 (9), 686-690 (1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; 1 (bases 1 to 2446)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Zhao, Z., Yazdani, A., Shen, Y.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                                      GGGGGCGCAGGCGACGACGACGCCGGGAGGCGGCGGCCGTGCGGCGGCGCTCGTGGCCCGG
                                                                                                                                                                                                                  CTGCTGGGGCCAGGCCCGCCGCCGACTTCTCCGTGTCGGTGGAGCGCGCTCTGGCTGCC
                                                                                                                                                                                                                                                                                                                                                                         GAGACCATGGAGGCGGTGGCGGTGGCCGCCGGCGGGGGTCCTTCTCCTGGCCGGGGCC
  GGCTCCACGGGCGTGGCGGCCGCCGCGGGGCTGCACCGCTACCTGCGCGACTTCTGTGGC
                                          egcTccAceeeceTeeceeceeceeceeeecTecAcceCTAccTececeAcTTCTGTeec
                                                                                                                    CTGCTGGGGCCAGGCCGGCCGACTTCTCCGTGTCGGTGGAGCGCGCTCTGGCTGCC
                                                                                                                                                                                                                                                                             GGGGGCGCGGCAGGCGAGGCCCGGGAGGCGGCGGCCGTGCGGCGCTCGTGGCCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   412
                                                                                                                                                                                                                                                                                                                                                                                                                                                               95.0%;
ilarity 100.0%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /translation="MERVAVAAAVGVLLLAGAGGAAGDEAREAAAVRALVARLLGPGP |
AADESVSVERALAAKEGLDTYSLGGGGAARVRAVRARGSTGVAAAGLHRYLADECGCHYA |
WSGSQLRLERPLEAVEGELTEATPNRYRYYQNVCTQSYSFVWWDWARWEREIDDWALN |
GINLALAWSGGEAIWQRVYLALGLTQABINEFFTGBAFLAWGRMCKHLTWGGFLPSW |
HIKOLYLCHRVLDQWRSFGMTPVLPAFRAGHVERAVTRVPPQVNNTKMGSWCHFNCSYS |
CSFILLAPEDEIPFIIGSLFLRELIKEFGTDHIYGADIFNEMQPPSSEESYLAAATTAV |
YEANTAYDTEAVWALLGGWLFGDOPGFWGPAQIRAVLAGNYFRGRLLVDLFABSCPVTT |
RTASFQGQPFIWCMLLNGGWLGHOODGENGARTHAUTSAFSTAVGTGMAPEGISQ |
NEVVYSLMAELGWRKDDVDLAAWTSFAARLFANSGARARLFENSTWVGTGMAPEGISQ |
NEVVYSLMAELGWRKDDVDLAAWTSFAARLFALFALTSAFSLATSPAFRYLLDLFRG |
CRGHNESFLVRRSSYLSKELASLLRAGGVLAYELLFALDDVLASDSRFLLGSWLEQ |
AVQELVSLYYEEARSAFLSKELASLLRAGGVLAYELLPALDEVLASDSRFLLGSWLEQ |
ARAAAVSEARADFYBGNSRYQLTLWGFBGNILDYANKGLAGLVANYYTERWRLFLEAL |
ARAAAVSEARADFYBGNSRYQLTLWGFBGNILDYANKGLAGLVANYYTERWRLFLEAL |
ARAAAVSEARADFYBGNSRYQLTLWGFBGNILDYANKGLAGLVANYYTERWRLFLEAL |
ARAAAVSEARADFYBGNSRYQLTLWGFBGNILDYANKGLAGLVANYYTERWRLFLEAL |
ARAAAVSEARADFYBGNSRYQLTLWGFBGNILDYANKGLAGLVANYYTERWRLFLEAL |
ARAAAVSEARADFYBGNSRYGLTLWGFBGNILDYANKGLAGLVANYYTERWRLFLEAL |
ARAAAVSEARADFYBGNSRYGLTLWGFBGNILDYANKGLAGLWANYTERWRLFLAGL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2239...>2446
/gene="ufHSD1"
a 775 c 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VDSVAQGI PFQQHQFDKNVFQLEQAFVLSKQRYPSQPRGDTVDLAKKI FLKYYPGWVA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /evidence=experimental
/product="alpha-N-acetylglucosaminidase"
/protein id="AAB36604.1"
/db_xref="GI:1479981"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /organism="Homo
/mol_type="mRNA'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="ufHSD1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /gene="ufHSD1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /dev
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ê
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene="ufHSD1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 'gene="ufHSD1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         mol type="mank"

tb_xref="taxon:9606"

tev_stage="adult"

7446
                                                                                                                                                                                                                                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 2446;
Pred. No. 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sun, Z.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Bailey, J., Caskey, C.T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 2446;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
```

Š

B

밁 Ś 片 Ş 밁 Ś

Gaps

395 240 335 180 275 120 215 9

밁 Ş Ś 멍 S

Ş 밁 Ş 8 Ş B Ş 밁 Ś В Š 맒

В

밁

	•
696 CTGGCCTGGGGGCGAATGGGCAACCTTGCACACCTTGGACTAGGGCCCCCCCC	396 TGCCACGTGGCCTGGTCCGGCTCTCAGCTGCGCCTGCCGCGCCACCCGTGCCG 455
8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	0
GEAGAAGGCCTCACTCAGCAAGGAGTTGAGGAGTTGAGGCTTGATATATAT	1476 GCTGAGCTGGGCTAGAGGACCCAGTGCCAGATTTGGCAGCCTGGGTGACCAGCTTT 1535

 A
 B
 A
 B
 A
 B
 A
 B
 A
 B
 A
 B
 A
 B
 A
 B
 A
 B
 A
 B
 A
 B
 A
 B
 A
 B
 A
 B
 A
 B
 A
 B
 A
 B
 A
 B
 A
 B
 A
 B
 A
 B
 A
 B
 A
 B
 A
 B
 A
 B
 A
 B
 A
 B
 A
 B
 A
 B
 A
 B
 A
 B
 A
 B
 A
 B
 B
 A
 B
 A
 B
 A
 B
 A
 B
 A
 B
 A
 B
 A
 B
 A
 B
 A
 B
 A
 B
 A
 B
 A
 B
 A
 B
 A
 B
 A
 B
 A
 B
 A
 B
 A
 B
 A
 B
 A
 B

1175 783 1115

1235

```
JOURNAL
MEDLINE
PUBMED
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 5
                Ś
                                                  밁
                                                                                Ş
                                                                                                                 В
                                                                                                                                                      Ś
                                                                                                                                                                                           ₽,
                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                     ORIGIN
                                                                                                                                                                                                                                                                                                                                                        BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          rocus
                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
Matches 2084; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                                                                                                                          876
                    604
                                                     936
                                                                                       544
                                                                                                                                                            484
                                                                                                                                                                                               816
                                                                                                                                                                                                                                 424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Molecular dissection of a cosmid from a gene-rich region in 17q21 and characterization of a candidate gene for alpha-N-acetylglucosaminidase with two cDNA isoforms Mamm. Genome 7 (9), 686-690 (1996) 96359157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2933 bp DNA linear
Human alpha-N-acetylglucosaminidase (ufHSD2) gene,
L78465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. 1 (bases 1 to 2933)
Zhao, Z., Yazdani, A., Shen, Y., Sun, Z., Bailey, J., Caskey, C.T. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        L78465.1 GI:1479982
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Lee, C.
GGAGCGGCCAGGAGGCCATCTGGCAGCGGGTGTACCTGGCCTTGGGCCTGACCCAGGCAG
                                                                        CCCGCTGGGAGCGAGAGATAGACTGGATGGCCTGAATGGCATCAACCTGGCACTGGCCT
                                                                                                                            GGTACCGCTATTACCAGAATGTGTGCACGCAAAGCTACTCCTTCGTGTGGTGGGACTGGG
                                                                                                                                             GGTACCGCTATTACCAGAATGTGTGCACGCAAAGCTACTCCTTCGTGTGGTGGGACTGGG
                                                                                                                                                                                             TGTTCCAGGGCCGTGGACCCTCCAGGGTGGGATGCGCCCCTGCTCATGACACTGCCCGCA
                                                                                                                                                                                                                               529
                                                                                                                                                                                                                                                                80.1%; ilarity 98.4%; Conservative
                                                                                                                                                                                                                                                                                                                                              / TEARS AT TO A MODIFY GROGES WOCAPAHDTARRYRYYONVCTQSYSFVWWDWA
/ TEARS AT ION- MODIFY GROGES WOCAPAHDTARRYRYYONVCTQSYSFVWWDWA
REWERE IDWMALNOINLALAWSGOEAIWORVYLALGLIFQAEIWEFTTQPAFLAWGRWCN
LHTWDGPLPPSWHIKQLYLOHRVLDOWRSFGMTPVLPAFAGHVPEAVTRYFPOVNVTK
MGSWGHRNCSYSCSFELLAPEDPIFPITGSLFLRELIKEFGTDHIYGADTFNEMOPPSS
EPSYLAAATTAVYEAMTAVDTEAVWLLQGWLFQHQPQFWGPAQIRAVLGAVPRGRLLV
LDLFAESQPVYTRYASFQQOPFIWCMLENTGGNHGLFGALEAVNGGTEAARLFPNSTM
VGTGMAPEGISQNEVVYSLMAELGWRKDPVPDLAAWTSFAARRYGYSHDDAGAWRL
VGTGMAPEGISQNEVVYSLMAELGWRKDPVPDLAAWTSFAARRYGYSHDDAGAWRL
LLRSYYNCSGEACTGHNRSPLYRRPSLQWNTS.WYNRSDVFEAWRLLLTSAFBLATSP
AFRYDLLDLTRQAVQELVSLYYEEARSAYLSKELASLLRAGGVLAYELLPALDEVLAS
DSRFTLGSWNLEQARAAMSEAEADFYEQNSRYQLTLWGPDGNTLDVANKQLAGLVANY
YTPRWRLETLEALVUSVAQGIPFQQHQFDKNVFQLEQAFVLSKQRYPSQPRGDTVDLAK
KIFLKYYPGWVAGSW"
581 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="ufHSD2"
806. .2725 .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="ufHSD1"
806. .2725
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="ufHSD1"
806. .2820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /gene="ufHSD2"
/codon_start=1
/evidence=experimental
/product="alpha-N-acetylglucosaminidase"
/protein_id="AAB36605.1"
/db_xref="GI:1479983"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /organism="Homo sapiens"
/mol_type="genomic DNA"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /dev_stage="adult"
306._.2820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   clone="59"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (human)
                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                Score 2063.6; DB 9; Pred. No. 9.9e-266; 0; Mismatches 34;
                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRI 25-NOV-1996 complete cds.
                                                                                                                                                                                                                                                                                                      2933;
                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                               875
                                                                                                                                                                                                                                 483
                      663
                                                                                       603
                                                                                                                            935
                                                                                                                                                            543
                                                       995
                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5
                             5
                                                                                                    S
                                                                                                                                         먕
                                                                                                                                                                           Ś
                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                      5
                                                                                                                                                                                                                                                                                                                                                                                                                             문
                                                                                                                                                                                                                                                                                                                                                                                                                                                         5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                뭥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      뫄
     밁
                                                                        밁
                                                                                                                                                                                                                                                                                                                                                          1776
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1116
                                                                                                           1624
                                                                                                                                             1956
                                                                                                                                                                              1564
                                                                                                                                                                                                                  1896
                                                                                                                                                                                                                                                 1504
                                                                                                                                                                                                                                                                                     1836
                                                                                                                                                                                                                                                                                                                                                                                         1384
                                                                                                                                                                                                                                                                                                                                                                                                                                                              1324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1084
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1024
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        964
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             844
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       724
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATGITCCCGAGGCTGTCACCAGGGTGTTCCCTCAGGTCAATGTCACGAAGATGGGCAGTT 903
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGGTCCTGGACCAGATGCGCTCCTTCGGCATGACCCCAGTGCCTGCATTCGCGGGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGATCAATGAGTTCTTTACTGGTCCTGCCTTCCTGGCCTGGGGGGGAATGGGGCAACCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGAGCGGCCAGGAGGCCATCTGGCAGCGGGTGTACCTGGCCTTGGGCCTGACCCAGGCAG
                             GCATCTGGTACAACCGATCTGATGTGTTTTGAGGCCTGCCGCGCTGCTCACATCTGCTC
                                                                                                                                                                                                                                                                                                                 TCAGCCAGAACGAAGTGGTCTATTCCCTCATGGCTGAGCTGGGCTGGCCGAAAAGGACCCAG
                                                                                                                                                                                                                                                                                                                                                                              AAGCTGCCCGCCTCTTCCCCAACTCCACCATGGTAGGCACGGGCATGGCCCCCGAGGGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCGCAGCCACCGCCGTCTATGAGGCCATGACTGCAGTGGATACTGAGGCTGTGTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCTATGGGGCCGACACTTTCAATGAGATGCAGCCACCTTCCTCAGAGCCCTCCTACCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TCCCCATCATCGGGAGCCTCTTCCTGCGAGAGCTGATCAAAGAGTTTGGCACAGACCACA 1023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGGGCCACTTTAACTGTTCCTACTCCTGCTCCTTCCTTCTGGCTCCGGAAGACCCCCATAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGGGCCACTTTAACTGTTCCTACTCCTGCTCCTTCCTTCTGGCTCCGGAAGACCCCATAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACACCTGGGATGGCCCCCCCCCCCCCCCCCCCACATCAAGCAGCTTTACCTGCAGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCTGCAGGGGCCACAATCGTAGCCCGCTGGTCAGGCGGCCGTCCCTACAGATGAATACCA
                                                                                                                                                                 TGCCAGATTTGGCAGCCTGGGTGACCAGCTTTGCCGCCGGCGGTATGGGGTCTCCCACC
                                                                                                                                                                                                                                                                                                                                                          AAGCTGCCCGCCTCTTCCCCAACTCCACCATGGTAGGCACGGGCATGGCCCCCGAGGGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                ACAACTTTGGGGGAAACCATGGTCTTTTTGGAGCCCTAGAGGCTGTGAACGGAGGCCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACAACTTTGGGGGAAACCATGGTCTTTTTGGAGCCCTAGAGGCTGTGAACGGAGGCCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGCCTGTGTATACCCGCACTGCCTTCCTTCCAGGGCCAGCCCTTCATCTGGTGCATGCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTGTGCTGGGAGCTGTGCCCCGTGGCCGCCTCCTGGTTCTGGACCTGTTTGCTGAGAGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      crerecreseasecrerecceseseccesecreserrereseasecrerrrecreaseasec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCGCAGCCACTGCCGTCTATGAGGCCATGACTGCAGTGGATACTGAGGCTGTGTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TCTATGGGGCCGACACTTTCAATGAGATGCAGCCACCTTCCTCAGAGCCCTCCTACCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TCCCCATCATCGGGAGCCTCTTCCTGCGAGAGCTGATCAAAGAGTTTGGCACAGACCACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATGTTCCCGAGGCTGTCACCAGGGTGTTCCCCTCAGGTCAATGTCACGAAGATGGGCAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACACCTGGGATGGCCCCCTGCCCCCCCTCGGCACATCAAGCAGCTTTACCTGCAGCACC
                                                                                                                                             CGGACGCAGGGGCAGCGTGGAGGCTACTGCTCCGGAGTGTGTACAACTGCTCCGGGGAGG
                                                                                                                                                                                                                  TGCCAGATTTGGCAGCCTGGGTGACCAGCTTTGCCGCCCGGCGGTATGGGGGTCTCCCACC
                                                                                                                                                                                                                                                                                       TCAGCCAGAACGAAGTGGTCTATTCCCTCATGGCTGAGCTGGGGCTGGCGAAAGGACCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGCCTGTGTATACCCGCACTGCCTCCTTCCAGGGCCCAGCCCTTCATCTGGTGCATGCTGC
           GAGGCCTGCGGCTGCTCACATCTGCTC
```

1443

2135 1743 2075 1683 2015 1623 1955 1563 1895 1503 1835 1383

1715 1323 1655

1775

1263

1595 1203 1535 1143 1475 1083 1415

```
REFERENCE
AUTHORS
TITLE
                                                         KEYWORDS
SOURCE
ORGANISM
                                                                                                                                        RESULT 6
MMU85247
LOCUS
                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                 셤
                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                $
                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                       뮍
                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                      뭐
                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5
                                                                                                                              DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                            ZERSION
                                                                                                       ACCESSION
                                                                                                                                                                                                  2916
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1924
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1804
                                                                                                                                                                                                                                                                                                                                                                2344
                                                                                                                                                                                                                                                                                                                                                                                      2676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2044
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1984
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2196
                                                                                                                                                                                                                                                                                                                                                                                                                                     2616
                                                                                                                                                                                                                                                                                                                                                                                                                                                          2224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1744
Zhao, K.W
Cloning
   Mus musculus

Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus

1 (bases 1 to 2452)

Zhao, K.W., Li, H.H. and Neufeld, E.F.
                                                                                                      Mus musculus lysosomal complete cds.
U85247
                                                                      Mus
                                                                                            U85247.1
                                                                                                                                        MMU85247
                                                                                                                                                                                                  ACTGTTTTCTTTCCACTT
                                                                                                                                                                                                                ACTGTTTTCTTTCCACTT
                                                                                                                                                                                                                                                                   TGGGGGGATTGGAGGGAAATGACCTGCCCTCCACCACCACCAAAGTGTGGGATTAAAGT
                                                                                                                                                                                                                                                                                                               ACATCACAGGATAACCCAGGCCTGGGAGGAGGCCCCACGGCCTGCTGGTGGGGTCTGACC
                                                                                                                                                                                                                                                                                                                                                     ACCACTGGGCCTTGTTTTCCGCTAATTCCAGGGCAGAGTTCCAGGGCCCAGAGCTGGACAG
                                                                                                                                                                                                                                                                                                                                                                                                  AGAAGATCTTCCTCAAATATTACCCCGGCTGGGTGGCCGGCTCTTGGTGATAGATTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                      TCGTTCTCAGCAAGCAGAGGTACCCCAGCCAGCCGCGAGGAGACACTGTGGACCTGGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGGGCATCCCTTTCCAACAGCACCAGTTTGACAAAAATGTCTTCCAACTGGAGCAGGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCAACTACTACACCCCTCGCTGGCGGCTTTTTCCTGGAGGCGCTGGTTGACAGTGTGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TGTGGGGGCCAGAAGGCAACATCCTGGACTATGCCAACAAGCAGCTGGCGGGTTGGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TGGCCTCCCTGTTGAGGGCTGGAGGCGTCCTGGCCTATGAGCTGCCGGCACTGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGCAGGAGCTGGTCAGCTTGTACTATGAGGAGGCAAGAAGCGCCTACCTGAGCAAGGAGC
                                                                                                                                                                                                                                                                                                                                        ACCACTGGGCCTTGTTTTCCGCTAATTCCAGGGCAGATTCCAGGGCCCAGAGCTGGACAG
                                                                                                                                                                                                                                                                                                                                                                                     AGAAGATCTTCCTCAAATATTACCCCGGCTGGGTGGCCGGCTCTTGGTGATAGATTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                 TCGTTCTCAGCAAGCAGAGGTACCCCAGCCAGCCGAGGAGACACTGTGGACCTGGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AGGGCATCCCTTTCCAACAGCACCAGTTTGACAAAAATGTCTTCCAACTGGAGCAGGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCAACTACTACACCCCTCGCTGGCGGCTTTTTCCTGGAGGCGCTGGTTGACAGTGTGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CGGCAGTCAGTGAGGCCGAGTTTCTACGAGCAGAACAGCCGCTACCAGCTGACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGGCAGTCAGTGAGGCCGAGGCCGATTTCTACGAGCAGAACAGCCGCTACCAGCTGACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGGTGCTGGCTAGTGACAGCCGCTTCTTGCTGGGCAGCTGGCTAGAGCAGGCCCGAGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGGTGCTGGCTAGTGACAGCCGCTTCTTGCTGGGCAGCTGGCTAGAGCAGGCCCGAGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   rescerecretreadeseresadeserecereserareaserecreceseacissace
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGCAGGAGCTGGTCAGCTTGTACTATGAGGAGGCAAGAAGCGCCTACCTGAGCAAGGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGTGGGGGCCAGAAGATCCTGGACTATGCCAACAAGCAGCTGGCGGGGTTGGTGG
                                                                     musculus (house mouse)
 and
                                                                                           GI:2660687
expression of Mouse gene encoding the
                                                                                                                                                                                                 2933
                                                                                                                                                                                                                      2541
                                                                                                                         2452 bp mRNA linear I
alpha-N-acetylglucosaminidase
lysosoma
                                                                                                                                       ROD
                                                                                                                           Naglu
                                                                                                                                       03-DEC-1997
                                                                                                                            mRNA,
                                                                                                                                                                                                                                                                  2523
                                                                                                                                                                                                                                             2915
                                                                                                                                                                                                                                                                                          2855
                                                                                                                                                                                                                                                                                                                2463
                                                                                                                                                                                                                                                                                                                                                                                                                                                       2283
                                                                                                                                                                                                                                                                                                                                       2795
                                                                                                                                                                                                                                                                                                                                                                                    2735
                                                                                                                                                                                                                                                                                                                                                                                                           2343
                                                                                                                                                                                                                                                                                                                                                                                                                                  2675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1983
                                                                                                                                                                                                                                                                                                                                                             2403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2043
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1923
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JOURNAL
REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                 BASE
           밁
                            5
                                                       뭥
                                                                        S
                                                                                                   밁
                                                                                                                       5
                                                                                                                                                ₽
                                                                                                                                                                     Š
                                                                                                                                                                                              멼
                                                                                                                                                                                                                S
                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                       ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                     Query Match
Best Local
                                                                                                                                                                                                                                                                                        Matches 1864;
                                                                                                                                                                                                                                                                                                                                                 exon
exon
exon
exon
exon
exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    source
           303
                                                                             350
                                                                                                     183
                                                                                                                                                  123
                                                        243
                                                                                                                                                                                                                      170
                                                                                                                                                                                                                                                                  110
                                                                                                                           290
                                                                                                                                                                        230
                                                                                                                                                                                                63
                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                  486
```

```
Zhao, K.W., Li, H.H. and Neufeld, E.F. Direct Submission
Submitted (13-JAN-1997) Biol. Chem.,
Angeles, CA 90095 USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  alpha-N-acetylglucosaminidase
Unpublished
                                                                                                                      GGCGGCCGCCGCGGGGCTACCTGCGCGACTTCTGTGGCTGCCACGTGGCCTG
                                                                                                                                                                                                          GTCCAGCGCTCAGCTGCACCTGCCGTGGCCGCTGCCCGCTGTGCCCGACGGGCTGACCGA
                                                                                                                                                                                                                                                                ecceéceccaarricireererecereadececececidecedaceaerecedecidea
                                                                                                                                                                                                                                                                                                CCCCGCGGCCGACTTCCCGTGTCGGTGGAGCGCGCTCTGGCTGCCAAGCCGGGCTTGGA
                                                                                                                                                                                                                                                                                                                                                                                                CGACGAGGCCCGGGAGGCGGCGGCGTGCGGGGCGCTCGTGGCCGGCTGCTGGGGGCCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GECGGCAGCCGCGGGCTGCACCTACCTGCGTGACTTCTGTGGCTGTCAGGTGGCCTG
                                                                                                                                                                          CACCTACAGCCTGAGCGGCGGCGGCGGGTGCCAGTGCTTGTGCGCGGCTCCACGGCCGT
                                                                                                                                                                                                                                                                                                                                                    TGATGAGGCTCGGGAGGCAAAGGCCGTGCGGGAACTGGTGGTCCGGCTACTGGGACCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                       63.1%; ilarity 82.8%; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         759. .1015
1016. .>2220
a 735 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        <1. .
378.
526.
673.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AMVTVDPDAVWLLQGWLFQHQPQFWGPSQIRAVLEAVPRGRLLVLDLFAESHPVYMHT
ASFHGQPFIWCMLHNFGGNHGLFGALEDVNRGPQARALFPNSTWYMGTGIAPEGIGQNE
VVYALMAELGWRKDPVPDLMWSSFAIRRYGVSQPDAVAAWKLLLRSVLYNCSGEACS
GHNRSPLVKRPSLQWSTAVWYNRSDVFEAWRLLLTAAPULTTSPAFRXDLYNCHDAVR
QELVSLCYSEARTAYLKQELDLLLRAGGLLVYKLLPTLDELLASSSHFLLGTWLDQAR
KAAVSEAEAQFYEQNSRYQITLWGPEGNILDYANKQLAGLVADYYQPRWCLFLGTLAH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /BC_number="3.2.1.50"
/function="hydrolyse alpha-N-acetylglucosaminide
glycosaminoglycans"
/note="lysosomal alpha-N-acetylglucosaminidase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SLARGVPFQQHEFEKNVFPLEQAFVYNKKRYPSQPRGDTVDLSKK1FLKYHPQPDSL'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FLLAPGDPMFPLIGNLFLRELTKEFGTDHIYGADTFNEMQPPFSEPSYLAATTAAVYE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SAQLHLPWPLPAVPDGLTETTPNRYRYYQNVCTHSYSFVWWDWARWEQEIDWMALNGI
NLALAWNGQEAIWQRVYLALGLTQSEIDTYFTGPAFLAWGRMGNLHTWDGPLPRSWHL
SQVYLQHRILDRWRSFGMIPVLPAFAGHVPKAITRVFPQVNVIKLGSWGHFNCSYSCS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /translation="meaaglavilgfillaggsvgdbareakavrelvvrllgpgpaa
NFLVSVeraladesgldtyslsggggvpvlvrgstgvaaaaglhrylrdfcgcqvaws
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /codon_start=1
/product="Naglu"
/protein_id="AAB88084.1"
/db_xref="GI:2660688"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /strain="B6/CBAF1J"
/db_xref="taxon:10090"
/tissue_type="liver"
.2220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   mol_type="mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .525
.672
.758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 1623.6; DB 10; Lengt Pred. No. 4.1e-207; O; Mismatches 380; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         φ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           rt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 UCLA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 10833 Le
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 2452;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conte Ave,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
362
                                                                                                                                                                                                                                                                182
                                         469
                                                                                                                             409
                                                                                                                                                                          242
                                                                                                                                                                                                                                                                                                          289
                                                                                                                                                                                                                                                                                                                                                    122
                                                                                                                                                                                                                                                                                                                                                                                                229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOL
                                                                                   302
                                                                                                                                                                                                                   349
                                                                                                                                                                                                                                                                                                                                                                                                                                       62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ۲,
```

1310 CTGGTGCATGCTGCACAACTTTGGGGGAAACCATGGTCTTTTTGGAGGCCTAGAGGCTGT 1369	470 GGCCCCCARAGAGEMACCGCTATRACAGAATGGTGCAGCGAAATGGTCTCCTTCCTTCTGT 529 363 AACCACGCCCAACAGGTGGGAGCGAGAGATGGCACTGCAATGGCATCATCCTTCTTCT 529 GTGGTGGGACTGGGACCGAGAGAGAGATGGAATGGCACTGAATGGCATCAA 589 423 GTGGTGGGACTGGACCTTGGAACGAGAGAGATGGCACTGGAATGGCATCAATGGCATCAA 482 530 CCTGGACTGGACCTTGGAACGAGCAATGAATTGAATGGCATCTGAATGGCATCAA 482 542 CCTGGACTGGACCTTGGAACGAAGAGACATTGAATGGCAATGGCATCTGAATGGCATCAA 482 550 CCTGGACCTAGAACTTGAACGATCATTCATCTGTTCTTGAATGGCATCTGACTTGGACTTGAATGGCATCTGACTTTGAATGGCATCTGACTTTGAATGGCATCTGACTTGAGCTTGAGCTTGAGCTTGAGCTTGAGAGGAATGACTAATGAATTGAATTGAATTGAATGAA	
RESULT 7 HSU43572 HSU43572 HSU43572 HSU43572 HSU43572 HUMAN Alpha-N-acetylglucosaminidase (NAGLU) gene, complete cds. ACCESSION U43572.1 GI:1171228 VERSION U43572.1 GI:1171228 KEYWORDS SOURCE Homo sapiens (human) ORGANISM Homo sapiens (buman) From Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. REFERENCE 1 (bases 1 to 10127) AUTHORS The molecular basis of Sanfilippo syndrome type B JOURNAL Proc. Natl. Acad. Sci. U.S.A. 93 (12), 6101-6105 (1996) 8650226	Db 1443 GGGGGTCTCCCCGGGTCGCACCATTCCTACAGACTCCTACTACAGACTCCTTACTACAGACTCCTACTACAGACTCCTACTACAGACTCCTACTACAGACTCCTACTACAGACTCCTACTACAGACTCCTACTACAGACTCCTTCCT	

뮍

8 8 8 8 8

8 8 8 8

В

5 B B B

8 8 8

유 성

B 8 B 8

유 성

g

Indels Length

Gaps

0

1171

8215

8275

1231

1291

8335

10127 0

```
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               intron
                                                                                                                                                                                                                                                                                 intron
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Zhao, H.G., Li.H.H. and Neufeld, E.F. Direct Submission Submitted (19-DEC-1995) Hong G. Zha 10833 Le Conte Ave., Los Angeles, C Location/Qualifiers
                                    2139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WGGSQLRLERPLPAVPGELTEATPNRYRYYQNVCTQSYSFVWWDWARWEREIDWMALN
GINLALAWSGQERIWQRYYLALGITQAEINEFFFEAFFLARAFLAWSGGERIWGSYS
HIKQLYLOHRULDQWRSGGMTPVLBARAFLYEEAFTEAFFLARAFLAWSGGERIWGSYS
SFLLAPEDPIFUIGSLFFLELIKEFFGDHIYGADTPNEMQPPSSBPSYLAAATTAV
TEAMTAVDTEAVWLLQGWLFGHOPQFWGPAQIRAVGAPFGRELVULDLFAESQPVYT
RTASFQGOPFIWCMLLGGWLFGHOPQFWGPAQIRAVLGAVPGGELVLULDLFAESQPVYT
RTASFQGOPFIWCMLHNFGGNHGLFGALEAVNGGFEAAFFLEALVLULFAESQFVYT
RTASFQGOPFIWCMLTAWFUNGSHAAWTSFAARRYGVSHDDAGAAWRLLLESVYNCGGEA
CRGHNRSPLVRRSDYDDLAAWTSFAARRYGVSHDDAGAAWRLLLESVYNCGGEA
ACGGLYSLYFEEAFSAYLSKELASLLRAGGVLAYELLFBAPSLAVSPAFRYLLGSWLEQ
AVQELVSLYYEEARSAYLSKELASLLRAGGVLAYELLFBADGLYANYYTFRWRLFLEAL
LDSVAQGIPFQQHQFDKNVFQLEQAFVLSKQRYPSQPRGDTVDLAKKIFLKYYPGWVA
                                                                       /gene="NAGLU"
/note="the sequence for this
by the submitters and partly
Accession Number M84472"
                                                                                                                                                                                        /gene="NAGLU"
/note="the sequence for this
by the submitters and partly
Accession Number M84472"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /EC_number="3.2.1.50"
/function="one of four enzymes involved in the of heparan sulfate; specifically removes the alpha-N-acetylglucosamine residues"
/note="lysosomal enzyme; deficient in Sanfilipp
                                  /number=5
2846 c
                                                                                                                                                              6348.
                                                                                                                                                                                                                                                                                                                                                               note="the sequence for this intron was partly determined by the submitters and partly derived from GenBank Accession Number M84472"

/number=2
                                                                                                                                                                                                                                                                                                                                                                                                                                          2690. .3481
/gene="NAGLU"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /codon_start=1
/product="alpha-N-acetylglucosaminidase"
/protein_id="AAC50512.1"
/protein_id="AAC50512.1"
/db_xref="GI:1171229"
/translation="MEAVAVAAAVGVLLLAGAGGAAGDEAREAAAVRALVARLLGPGP
/AADFSVSVERALAAKPGLDTYSLGGGGAARVRVRGSTGVAAAAGLHRYLRDFCGCHVA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="NAGLU"
/note="5' end of mRNA is uncertain"
join(1417. . 1799,2542. .2689,3482.
6091. .6347,8167. .9377)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          syndrome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1800. .2541
/gene="NAGLU"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="NAGLU"
/EC_number="3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    'number=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /gene="NAGLU"
join(<1085. .1799,2542. .2689,3482.
5091. .6347,8167. .9588)
                                                                                                                                                                                                                                                                                                                     gene="NAGLU"
                                                                                                                                                                                                                                                                                                                                             629. .3812
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cell_type="fibroblast"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          chromosome="17"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ref="taxon:9606"
                                  2824 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Zhao,
es, CA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cell"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              deficient in Sanfilippo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 , Biological
90095, USA
                                                                                               intron was partly determined derived from GenBank
                                                                                                                                                                                                                    intron was partly de derived from GenBank
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .3628,3813.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .3628,3813.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Chemistry,
                                                                                                                                                                                                                                          determined
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        degradation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       UCLA,
                          덩
                                                                       δ
                                                                                                                     뮍
                                                                                                                                               5
                                                                                                                                                                                                밁
                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                            片
                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches 1429;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                   8876
                                                                                                                                                                                                                                                                                                                                                                                                                                                   8816
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8756
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1712
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8696
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8936
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGGAGCCCTAGAGGCTGTGAACGGAGGCCCAGAAGCTGCCCGCCTCTTCCCCCAACTCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCGCAGTTCTGGGGGGCCCGACATCAGGGGCTGTGCTGGGAGCTGTGCCCCGTGGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            cererecaeaerecaraecreaeeerererecereceaaeeerecreeererecaeeaeea
TTTCCTGGAGGCGCTGGTTGACAGTGTGGCCCCAGGGCATCCCTTTCCAACAGCACCAGTT
                                                                                                                                                                                                                               GCTGGGCAGCTGGCTAGAGCAGCCCGAGCAGCAGTCAGTGAGGCCGAGGCCGATTTT
                                                                                                                                                                                                                                                                                                             CCTGGCCTATGAGCTGCTGCCGGCACTGGACGAGGTGCTGGCTAGTGACAGCCGCTTCTT
                                                                                                                                                                                                                                                                                                                                                                                                      GGAGGCAAGAAGCGCCTACCTGAGCAAGGAGCTGGCCTCCCTGTTGAGGGCTGGAGGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGTCAGGCGGCCGTCCCTACAGATGAATACCAGCATCTGGTACAACCGATCTGATGTGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCTCCGGAGTGTGTACAACTGCTCCGGGGAGGCCTGCAGGGGCCACAATCGTAGCCCGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTTTGCCGCCCGGCGGTATGGGGTCTCCCACCCGGACGCAGGGGCAGCGTGGAGGCTACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CATGGCTGAGCTGGGCGAAAAGGACCCAGTGCCAGATTTGGCAGCCTGGGTGACCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CATGGTAGGCACGGGCATGGCCCCCGAGGGCATCAGCCAGAACGAAGTGGTCTATTCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CATGGTAGGCACGGGCATGGCCCCCGAGGGCATCAGCCAGAACGAAGTGGTCTATTCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCCGCAGTTCTGGGGGCCCGCCCAGATCAGGGCTGTGCTGGGAGCTGTGCCCCGTGGCCG
                                       CTATECCAACAAGCAGCTGGCGGGGTTGGTGGCCAACTACTACACCCCTCGCTGGCGGCT
                                                                       CTATGCCAACAAGCAGCTGGCGGGGTTGGTGGCCAACTACTACACCCCTCGCTGGCGGCT
                                                                                                                                                         CTACGAGCAGAACAGCCGCTACCAGCTGACCTTGTGGGGGCCAGAAGGCAACATCCTGGA
                                                                                                                                                                                                                                                                                   CCTGGCCTATGAGCTGCTGCCGGCACTGGACGAGGTGCTGGCTAGTGACAGCCGCTTCTT
                                                                                                                                                                                                                                                                                                                                                                     GGAGGCAAGAAGCGCCTACCTGAGCAAGGAGCTGGCCTCCCTGTTGAGGGCTGGAGGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTACGACCTGCTGGACCTCACTCGGCAGGCAGTGCAGGAGCTGGTCAGCTTGTACTATGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGAGGCCTGGCTGCTCACATCTGCTCCCTCCCTGGCCACCAGCCCGCCTTCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGTCAGGCGGCCGTCCCTACAGATGAATACCAGCATCTGGTACAACCGATCTGATGTGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCTCCGGAGTGTGTACAACTGCTCCGGGGGAGGCCTGCAGGGGGCCACAATCGTAGCCCGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CTTTGCCGCCCGGCGTATGGGGTCTCCCACCCGGACGCAGGGGGCAGCGTGGAGGCTACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CATGGCTGAGCTGGCCTGGCGAAAGGACCCAGTGCCAGATTTGGCAGCCTGGGTGACCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGGAGCCCTAGAGGCTGTGAACGGAGGCCCAGAAGCTGCCCGCCTCTTCCCCCAACTCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCAGGGCCAGCCCTTCATCTGGTGCATGCTGCACAACTTTGGGGGGAAACCATGGTCTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCTCCTGGTTCTGGACCTGTTTGCTGAGAGCCAGCCTGTGTATACCCGCACTGCCTCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCICCIGGII
                                                                                                                       CTACGAGCAGAACAGCCGCTACCAGCTGACCTTGTGGGGGGCCAGAAGGCAACATCCTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTACGACCTGCTGGACCTCACTCGGCAGGCAGTGCAGGAGCTGGTCAGCTTGTACTATGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTGGACCTGTTTGCTGAGAGCCAGCCTGTGTATACCCGCACTGCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          55.48;
99.78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ricaiciggigcargeigcacaactiigggggaaaccaiggiciiti
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        °.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 1426.6; DB 9
Pred. No. 5.2e-181;
0; Mismatches 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9
```

2191 9175 2131 9115 2071 9055 2011 8995 1951

1891 8875 1831

8935

1771

8815

1711

8695 1651

8755

8635 1591 1531

8515 1471

8575

1411 8395 1351

PASE COUNT ORRIGIN Query Ma Best Loco Matches QY 1 Db 7	RESULT 8 AR160673 LOCUS DEFINITION ACCESSION VERSION KEYWORDS SOURCE ORGANISM REFERENCE AUTHORS TITLE JOURNAL FEATURES SOURCE	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
221 tch al simila 1429; CC 112 CATGG 734 CCTGG 774 CCTG	AR160673 AR160673 Sequence 3 from patent US 6255096. AR160673.1 GI:16225098 Unknown. Unknown. Unknown. Unclassified. 1 (bases 1 to 10380) 1 (bases 1 to 10380) 1 (bases 1 to 5036, Scott, H.Steele., Weber, B., Blanch, L. and Anson, D.Stewart. Synthetic mammalian .alphan-acetylglucosaminidase and genetic sequences encoding same patent: US 6255096-A 3 03-UUL-2001; Location/Qualifiers 1. 10380 /organism="unknown" 2010 a 2020 "Unknown"	9176 TTTCCTGGAGGCCCTGGTTGACAGTGTGGCCCCAGGGCATTCCCTTTCCAACAGCAGTT 9235 2192 TGACAAAATGTCTTCCAACTGGAGCAGGCCTTCGTTCTCAGCAAGCA
8694 2132 2132 2192 28814 88814 88874 2312 8993 8994 9054	8394 1832 1832 1892 1952 8514 8574 8634	0 7 3 1 7 5 1 9 5 3 9 7 3 1 2 4 2 4 2 4 2 4 2 4 2 4 2 4 2 4 2 4 2
IGCCAACAAGCAAGCTGGCGGGTTGGTGGCCAACTACTACACCCCTCGCTGGCGGGTTGCCAACAACAACCACCCCTCGCTGGCGGGGTTGCCAACAAGCACCAGCTTCCCAACAAGAACAGCACCAGTTCCTAGAAGAGCACCAGTTCCTAGAAGAGCACCAGTTCCTAGAAGAGCACCAGTTCCTAGAAGAGCACCAGTTCCTAAAAATGTCTTCCCAACAACTGGAAGGAGGCCTTCCTT	GRAGGCAAGAAGCGCCTACCTGAGCAAGCAGGCGGGCCTACCTGGTCACGCTGGTCAGGCTTGTAGGCCTACCTA	CATGGTAGGCACGGGCATGGCCCCCGAGGGCATCAGCCAGAACGAAGTGGTCTATTCCCT 1471 CATGGTAGGCACGGGCATGGCCCCCGAGGGCATCAGCCAGAACGAAGTGGTCTATTCCCT 8093 CATGGTAGGCACGGGCATGGCCCCCCGAGGGCATCAGCCAGAACGAAGTGGTCTATTCCCT 8093 CATGGTAGGCAGGGCATGGCCCACAGAGGACCAAGATCGAGCAGACGTGGTCTATTCCCT 81531 CATGCTGAGCTGAGCTGGCGAAAAGGACCCAGTGCCAGATTTGGCAGAGCTTGAGCAGCTTGACCAG 1531 CTTTGCCGCCCGGCGGTATGGGGTCTCCCCACCCGGACGCAGATTTGGCAGCGTGAGGGTACT 1591 CTTTGCCGCCCGGCGGTATGGGGTCTCCCACCCGGACGCAGATTTGGCAGCGTGAGGCTACT 8213 GCTCCGGAGTTGTACAACTGCTCCCGGGAGGGCCAGAGCGAAGCGAAGCGAACCGATCGAACCGATCTTACACCGT 1591 GCTCCGGAGTGTTACAACTGCTCCCGGGGAAGGCCTGCAGGGGCAACAATCGTAGCCCGCT 1591 GCTCCGGAGTGTTACAACTGCTCCCGGGGAAGGCCTGCAAACCGATCTGATGTTT 1711 GGTCAAGGCGGCCGTCCCTACAGATGAATACCAGGCATCTGGTTACAACCGATCTTGATTGTT 1711 GGTCAAGGCGGCCGTCCCTACAGATGAATACCAGCATCTGGTTACAACCGATCTTGTT 1711 GGTCAAGGCGGCCGTCCCTACAGATGAATACCAGCATCTGGTTACAACCAAC

repeat_unit complement (56945924) /rpt_family="Alu"	repeat_unit 4668 .4922 /rpt_family="Alu" /rpt_tropedirect	repeat_unit 4239. 4535 /rpt_family="Alu" /rpt_type=direct	repeat_unit complement(36333882) /rpt_family="Alu" /rpt_type=inverted	יקד/ מקני	/rpt_family="Alu" /rpt_type=inverte unit 32323631	m.γ.		<pre>complement (1082. /rpt_family="Alu" /rpt_type=inverte</pre>	repeat_unit complement(529806) /rpt_family="Alu" /rpt_tvpe=inverted	repeat_unit complement (356528) /rpt_family="Alu" /rpt_family="Alu" /rpt_family="Alu"	/clone="140C10" /clone_lib="Los	וא מו	/mo	Locati	Human Genetics, Baylor College of Medicine, One Baylor Plaza, Houston, TX 77030, USA	Shen, Y. and Gibbs, R.A. Direct Submission cubmitted (75-1008) ving chem and Dichard a		cwo cD	TITLE Molecular dissection of a cosmid from a gene-rich region in 17q21 and characterization of a candidate gene for	AUTHORS Zhao, Z., Yazdani, A., Shen, Y., Sun, Z., Bailey, J., Caskey, C.T. and	Eukaz Mamma	SOURCE Homo sapiens (human) ORGANISM Homo sapiens	z,	LOCUS HSU34879 46610 bp DNA linear PRI 14-JAN-1999 DEFINITION Human 17-beta-hydroxysteroid dehydrogenase (EDH17B2) gene, complete	RESULT 9	Qy 2492 CTCCACCACCAAAGTGTGGGATTAAAGTACTGTTTCTTTC
repeat_unit	repeat_unit	repeat_unit	repeat_unit	repeat_unit	repeat_unit	repeat_unit	repeat_unit	repeat_unit	repeat_unit	repeat_unit	repeat_unit	repeat_unit	repeat_unit		repeat_unit	misc_feature	repeat_unit	repeat_unit	בהפטר חודר	T	repeat_unit	repeat_unit	repeat_unit	repeat_unit	repeat_unit	repeat_unit
/rpt_type=inverted 2585426145	<pre>/rpt type=inverted complement(2563535976) /rpt familv="Alu"</pre>	/rpt type=direct complement(2398824293) /rpt_family="Alu"	/rpt_type=direct 2352723755 /rpt_family="Alu"	2074820899 /rpt_family="MER40"	<pre>complement(2016720504) /rpt_family="Alu" /rpt_type=inverted</pre>	19918. ** 20162 /rpt tfamily="MER21" /rpt type=direct	<pre>/rpt type=inverted complement(1941919713) /rpt_family="Alu" /rpt type=inverted</pre>	<pre>/rpt_type=inverted complement(1924919418) /rpt_family="Alu"</pre>	<pre>/rpt type=inverted complement(17179 .17466) /rpt family="Alu"</pre>	<pre>/rpt type=1hverted complement(16750 .17039) /rpt familv="Alu"</pre>	complement (1658316749) /rpt_family="Alu"	1509415389 /rpt_family="Alu" /rpt_type=direct	1483915086 /rpt_family="L1"	/rpt_family="Alu" /rpt_type=direct		<pre>/rpt_type=direct 1263534401 /note="region overlaps with GenHank Accession Number</pre>	12373 .1257 /rpt family="Alu"	<pre>complement (95999742) /rpt_family="Alu" /rpt_family="Alu" /rpt_tome=inverted</pre>	/rpt type=inverted	/rpt type=inverted	/rpt_type=direct complement(91199309) /rot familto=mll;	/ipt_type=inverted 8900. 9066 /rpt family="Alu"	complement (7804 8085) complement (7804 8085) /rpt_family="HSATI"	complement (74897796) complement (74897796) /rpt family="Alu" /rpt family="Alu"	/ PP - YPE-IN FILE () () () () () () () () () (<pre>/rpt_type=inverted complement (59586237) /rpt_family = Alu" /rpt_family = Alu"</pre>

```
Ş
                                                         밁
В
                                                                                   Ϋ́
                                                                                                                    Query Match
Best Local Similarity
Matches 1429; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                               exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                   exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      repeat_unit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  repeat_unit
                                                                                                                                                                                                                                                      repeat_unit
                                                                                                                                                                                                                                                                                                      repeat_unit
                                                                                                                                                                                                                                                                                                                                                  repeat_unit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                repeat_unit
                           1172
                      GCCGCAGTTCTGGGGCCCCCCCCAGATCAGGGCTGTGCTGGGAGCTGTGCCCCCGTGGCCG 1231
                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /number=1
26900..27070
/gene="EDH17B2"
/rpt_family="MER40"
                                                                                                                                                                                                            /rpt_family="Alu"
/rpt_type=direct
32380. .32705
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /translation="martvvlitgcssgiglhlavrlasdpsqsfkvyatlrdlktqg 
flweaaralacpegsletlqldvrdsksvaaarervtegrvbvlucuaagigligelea 
lgedavasvldvnvvgtvrmlqaflpdmkrasgsrvlutgsvegslmglpfndvycask 
falegiceslavlllpfgvhlsiiecgpvhtarmekvlgspeevldrdphtffhrfyg 
ylahskqvfreaaqnpeeevaevfltalrapkptlryftterflpllrmrlddpsgsny
                                                                                                                                                                                                                                                                                       /rpt_type=direct
complement (30221.
/rpt_family="Alu"
                                                                                                                                                                                                                                                                                                                                                                                                                             29084. .29261
/gene="EDH17B2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     28118. .28297
/gene="EDH17B2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /rpt_family="Alu'
/rpt_type=direct
26166. .26454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /product="17-beta-hydroxysteroid dehydrogenase"
/protein_id="AAD05019.1"
/db_xref="GI:975895"
                                                                                                                                                                             /rpt_family="Alu"
/rpt_type=direct
                                                                                                                                                                                                                                                                                                                                                                                 29348. .29892
/gene="EDH17B2"
                                                                                                                                                                                                                                                                                                                                                                                                                'number=5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           98473. .28566
| gene="EDH17B2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /TAMHREVFGDVPAKAEAGAEAGGGAGPGAEDEAGRSAVGDPELGDPPAAPQ"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /product="17-beta-hydroxysteroid dehydrogenase"
?6645. .27709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="EDH17B2"
join(26645. .27709,27803. .27970,28118. .28297,28473.
29084. .29261,29348. .29892)
/gene="EDH17B2"
                                                                                                                                                                                                                                                                                                                                     rpt_family="Alu"
                                                                                                                                                                                                                                                                                                                                                                    number=6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          number=3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       number=2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene="EDH17B2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           'gene="EDH17B2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   'gene="EDH17B2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                              number=4
                                                                                                                                  55.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       type=direct
lement(26507.
family="Alu"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       _type=direct
(27613. .27709,27803. .27970,28118. .28297,28473. .28566,
4. .29261,29348. .29617)
                                                                                                                                                                                                                                                         type=inverted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   _family="Alu"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        type=inverted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     family="Alu"
                                                                                                                                                                                                                                                                                                                                                     .30002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               29892
                                                                                                                    0;
                                                                                                                                  Score 1426.6; DB 9;
Pred. No. 3.6e-181;
                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                         .30520)
                                                                                                                    4
                                                                                                                                               Length 46610;
                                                                                                                    0
                                                                                                                    Gaps
                                                                                      1171
                                                          17753
             밁
                                     Ş
                                                                                                                                  밁
                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                      밁
                                                                                             S
                                                                                                                                                           Ş
                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
             18834
                                                                                                                                                                                                                                                           18594
                                                                                                                                                                                                                                                                                                                                                                                                                                               18414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           18354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          18114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      18054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        18294
                                                                                                                                                                                                18654
                                                                                                                                                                                                                                                                                                                                                                                    18474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    18234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               18174
                                                                                                                                                                                                                            2072
                                                                                                                                                                                                                                                                                          2012
                                                                                                                                                                                                                                                                                                                                                                                                                1892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1832
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1712
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1652
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCTCCGGAGTGTGTACAACTGCTCCGGGGAGGCCTGCAGGGGCCACAATCGTAGCCCGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CATGGTAGGCACGGGCATGGCCCCCGAGGGCATCAGCCAGAACGAAGTGGTCTATTCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGGAGCCCTAGAGGCTGTGAACGGAGGCCCAGAAGCTGCCCGCCTCTTCCCCAACTCCAC
             CCAGCCGAGGAGACACTGTGGACCTGGCCAAGAAGATCTTCCTCAAATATTACCCCGG
                                  CCAGCCGCGAGGAGACACTGTGGACCTGGCCAAGAAGATCTTCCTCAAATATTTACCCCGG
                                                                                         CTACGAGCAGAACAGCCGCTACCAGCTGACCTTGTGGGGGCCAGAAGGCCAACATCCTGGA
                                                                                                                                                                                                                                                                                                                                                                                  CCTGGCCTATGAGCTGCTGCCGGCACTGGACGAGGTGCTGGCTAGTGACAGCCGCTTCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGAGGCAAGAAGCGCCTACCTGAGCAAGGAGCTGGCCTCCCTGTTGAGGGCTGGAGGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTACGACCTGGTGGACCTCACTCGGCAGGCAGTGCAGGAGCTGGTCAGCTTGTACTATGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTACGACCTGCTGGACCTCACTCGGCAGGCAGGCAGGAGCTGGTCAGCTTGTACTATGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTTTGCCGCCCGGCGTATGGGGTCTCCCACCCGGACGCAGGGGCAGCGTGGAGGCTACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTTIGCCGCCGGCGGTAIGGGGTCTCCCACCCGGACGCAGGGGCAGGGCTGGAGGCTACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CATGGCTGAGCTGGCGAAAAGGACCCAGTGCCAGATTTGGCAGCCTGGGTGACCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CATGGTAGGCACGGGCATGGCCCCCGAGGGCATCAGCCAGAACGAAGTGGTCTATTCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGGAGCCCTAGAGGCTGTGAACGGAGGCCCAGAAGCTGCCCGCCTCTTCCCCCAACTCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCAGGGCCAGCCCTTCATCTGGTGCATGCTGCACAACTTTGGGGGAAACCATGGTCTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTCCTGGTTCTGGACCTGTTTGCTGAGAGCCAGCCTGTGTATACCCGGCACTGCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCTCCTGGTTCTGGACCTGTTTTGCTGAGAGCCCAGCCTGTGTATACCCGCACTGCCTT
                                                                         TTTCCTGGAGGCGCTGGTTGACAGTGTGGCCCAGGGCATCCCTTTCCAACAGCACCAGTT
                                                                                                                                                            TTTCCTGGAGGCGCTGGTTGACAGTGTGGCCCAGGGCATCCCTTTCCAACAGCACCAGTT
                                                                                                                                                                                               CTATIGCCAACAAGCAGCTGGCGGGGTTGGTGGCCAACTACTACACCCCTCGCTGGCGGCT
                                                                                                                                                                                                                            CTATGCCAACAAGCAGCTGGCGGGGTTGGTGGCCAACTACTACACCCCTCGCTGGCGGCT
                                                                                                                                                                                                                                                             CTACGAGCAGAACAGCCGCTACCAGCTGACCTTGTGGGGGCCAGAAGGCAACATCCTGGA
                                                                                                                                                                                                                                                                                                                         CCTGGCCTATGAGCTGCCGGCACTGGACGAGGTGCTGGCTAGTGACAGCCGCTTCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                GGAGGCAAGAAGCGCCTACCTGAGCAAGGAGCTGGCCTCCCTGTTGAAGGGCTGGAAGGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGAGGCCTGGCGGCTGCTCACATCTGCTCCCTCCCTGGCCACCAGCCCCGCCTTCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  reagecerecegerecrecrex archecerecereceres eaceaececes errors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGTCAGGCGGCCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGTCAGGCGGCCGTCCCTACAGATGAATACCAGCATCTGGTACAACCGATCTGATGTGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCTCCGGAGTGTGTACAACTGCTCCGGGGAGGCCTGCAGGGGGCCACAATCGTAGCCCGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CATGGCTGAGCTGGGCGAAAGGACCCAGTGCCAGATTTGGCAGCCTGGGTGACCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCAGGGCCAGCCCTTCATCTGGTGCATGCTTGCACAACTTTGGGGGGAAACCATGGTCTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCCTACAGATGAATACCAGCATCTGGTACAACCGATCTGATGTGTT
                                            2311
                                                                           18833
                                                                                                                                     18773
                                                                                                                                                                     2191
                                                                                                                                                                                                                               2131
                                                                                                                                                                                                                                                                                            2071
                                                                                                                                                                                                                                                                                                                                                                                                                   1951
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1891
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1831
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        18353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1651
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1531
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1411
                                                                                                          2251
                                                                                                                                                                                                                                                                                                                                                     2011
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           18173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      17873
                18893
                                                                                                                                                                                                  18713
                                                                                                                                                                                                                                                              18653
                                                                                                                                                                                                                                                                                                                         18593
                                                                                                                                                                                                                                                                                                                                                                                    18533
                                                                                                                                                                                                                                                                                                                                                                                                                                                  18473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             18413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    18293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          17933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        18113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               17993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 18233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    18053
```

```
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 10
AC067852/c
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                , 당
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL
           Direct Submitted (27-RR-2000) Whitehead Institute/MIT Center for Genome Research, 320 Charles Street, Cambridge, MA 02141, USA (Dases 1 to 179146)

25 3 (Dases 1 to 179146)

26 3 (Dases 1 to 179146)

27 3 (Dases 1 to 179146)

28 3 (Dases 1 to 179146)

29 3 (Dases 1 to 179146)

20 3 (Dases 1 to 179146)

20 3 (Dases 1 to 179146)

21 3 (Dases 1 to 179146)

22 3 (Dases 1 to 179146)

23 3 (Dases 1 to 179146)

25 3 (Dases 1 to 179146)

26 3 (Dases 1 to 179146)

27 3 (Dases 1 to 179146)

28 3 (Dases 1 to 179146)

29 3 (Dases 1 to 179146)

29 3 (Dases 1 to 179146)

29 3 (Dases 1 to 179146)

20 3 (Dases 1 to 179146)

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            18954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Boguslavkiy, L., Boukhgalter, B., Brown, A., Burkett, G., Campopiano, A., Castle, A., Choepel, Y., Colangelo, M., Collins, S., Collymore, A., Cooke, P., DeArellano, K., Dewar, K., Diaz, J.S., Dodge, S., Domino, M., Doyle, M., Ferreira, P., Fitzhugh, W., Gage, D., Galagan, J., Gardyna, S., Ginde, S., Goyette, M., Graham, L., Grand-Pierre, N., Grant, G., Hagos, B., Heaford, A., Horton, L., Howland, J.C., Illev, I., Johnson, R., Jones, C., Kann, L., Karatas, A., Klein, J., LaRocque, K., Lamazares, R., Landers, T., Lehoczky, J., Levine, R., Lieu, C., Liu, G., Locke, K., Macdonald, P., Marquis, N., McCarthy, M., McEwan, P., McGurk, A., McKernan, K., McPheters, R., McCarthy, M., McEwan, P., McGurk, A., McKernan, C., Melnga, V., Morrow, J., Murphy, T., Naylor, J., Norman, C.H., O'Connor, T., O'Donnell, P., O'Neil, D., Olivar, T.M., Oliver, J., Peterson, K., Pierre, N., Pisani, C., Pollara, V., Raymond, C., Riley, R., Rogov, P., Rothman, D., Roy, A., Santos, R., Schauer, S., Severy, P., Spencer, B., Stange-Thomann, N., Stoojanovic, N., Subramanian, A., Talamas, J., Venunc, G., Zainnen, M., Vel, R., Volar, A., Milson, B., Wu, X., Wyman, D., Ye, W.J., Volar, R., Volar, A., and Zodv, M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         19074 CTCCÁCCACCCAAAGTGTGGGATTAAAGTÁCTGTTTTCTTTCCACTTAAA 19126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        19014
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               18894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2 (bases 1 to 179146)
Birren, B., Linton, L., Nusbaum, C., Lander, E., Abraham, H., Allen, N., Anderson, S., Baldwin, J., Barna, N., Bastien, V., Beda, F., Boguslavkiy, L., Boukhgalter, B., Brown, A., Burkett, G., Collins, S.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              179146 bp DNA linear
Homo sapiens chromosome 17, clone RP11-400F19, com
AC067852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 (bases 1 to 179146)
Birren, B., Nusbaum, C. and Lander, E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Homo sapiens (humán)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Young, G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AC067852.23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CAGGGCAGATTCCAGGGCCCAGAGCTGGACAGACATCACAGGATAACCCAGGCCTGGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTGGGTGGCCGGCTCTTGGTGATAGATTCGCCACCACTGGGCCTTGTTTTCCGCTAATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GAGGCCCCACGGCCTGCTGGGGGGTCTGACCTGGGGGGATTGGAGGGAAATGACCTGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTGGGTGGCCGGCTCTTGGTGATAGATTCGCCACCACTGGGCCTTGTTTTTCCGCTAATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTCCACCACCACCAAAGTGTGGGATTAAAGTACTGTTTTCTTTTCCACTTAAA 2544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GAGGCCCCACGGCCTGCTGGTGGGGTCTGACCTGGGGGGATTGGAGGGAAATGACCTGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                sapiens chromosome 17, clone RP11-400F19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Zainoun, J., Zimmer, A. and Zody, M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GI:28570403
Raymond, C.,
Retta, R., Rise, C., Rogov, P.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      lear PRI 27-FEB-2003 complete sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            19013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           18953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        19073
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL
repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             repeat_region
                                                               repeat_region
                                                                                                                                                                                                                      repeat_region
                                                                                                                                                                                                                                                                                          repeat_region
                                                                                                                                                                                                                                                                                                                                                                      repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           source
                                                                                                                                           repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
```

```
RS Biren, B., Nusbaum, C., Lander, E., Abouelleil, A., Allen, N., Anderson, S., Arachchi, H.M., Barna, N., Bastien, V., Bloom, T., Anderson, S., Arachchi, H.M., Barna, N., Bastien, V., Bloom, T., Boguslawkiy, L., Boukhgalter, B., Camarata, J., Chang, J., Choepel, Y., Colymore, A., Cook, A., Cooke, P., Corum, B., DeArellano, K., Diaz, J.S., Dodge, S., Dooley, K., Dorris, L., Erickson, J., Faro, S., Ferreira, P., FitzGerald, M., Gage, D., Galagan, J., Gardyna, S., Graham, L., Grand-Pierre, N., Hafez, N., Hagopian, D., Hagos, B., Hall, J., Horton, L., Hulme, W., Iliev, I., Johnson, R., Jones, C., Kanat, A., Karatas, A., Kells, C., Landers, T., Levine, R., Lindblad-Toh, K., Liu, G., Lui, A., Mabbitt, R., MacLean, C., Macdonald, P., Major, J., Manning, J., Matthews, C., McCarthy, M., Mendrim, J., Meneus, L., Mihova, T., Mlenga, V., Murphy, T., Naylor, J., Nguyen, C., Nicol, R., Norbu, C., O'Connor, T., O'Donnell, P., O'Neil, D., Oliver, J., Peterson, K., Phunkhang, P., Pierre, N., O'Neil, D., Schauer, S., Schupback, R., Seaman, S., Severy, P., Smith, C., Spencer, B., Stange-Thomann, N., Stojanovic, N., Stubbe, M., Tavers, M., Vossiliev, H., Venkataraman, V.S., Viel, R., Vo, A., Wilson, B., Wu, X., Wyman, D., Young, G., Zainoun, J., Zembek, L., Zimmer, A. and Zody, M. Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Submitted (27-FEB-2003) Whitehead Institute/MIT Center for Genome Research, 320 Charles Street, Cambridge, MA 02141, USA On Feb 27, 2003 this sequence version replaced gi:28173140. All repeats were identified using RepeatMasker: Smit, A.F.A. & Green, P. (1996-1997) http://ftp.genome.washington.edu/RM/RepeatMasker.html
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Submitted (31-JAN-2003) Whitehead Institute/MIT Center for Genome Research, 320 Charles Street, Cambridge, MA 02141, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Spencer, B., Stange-Thomann, N., Stojanovic, N., Stubbs, M., Travers, M., Travers, M., Travers, M., Travers, M., Travers, M., Vo, A., Wilson, B., Wu, X., Vassiliev, H., Venkataraman, V.S., Viel, R., Vo, A., Wilson, B., Wu, X., Wyman, D., Young, G., Zainoun, J., Zembek, L., Zimmer, A. and Zody, M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (bases 1 to 179146)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Center code: WIBR
Web site: http://www-seq.wi.mit.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Center: Whitehead Institute/ MIT Center for
/rpt_family="GC_rich"
complement(6114. .6215)
                                                                                                                                                                                                                                                                                                                                                                                                     /rpt_family="GC_rich"
1327. .1382
                                                                                                                                                                                                        complement (3214.
                                                                                                                                                                                                                                                                                                                                            /rpt_famil
2432, .246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'rpt_family="GC_rich"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'chromosome="17"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              organism="Homo sapiens"
/mol_type="genomic DNA"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Schauer, S.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      rpt_family="AluJo"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .one="RP11-400F19"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -- Genome Center
                                                                   family="MIR"
.5721
                                                                                                                                                                family="(AGGGGG)n"
lement(3214. .3365)
family="MIR3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 _lib="RPCI-11 Human
                                                                                                                                                                                                                                                                                                                                                                     y="CT~rich"
                                                                                                                                                                                                                                                                                                 y="GC_rich"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Schupback, R., Seaman, S.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Severy, P.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Genome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Research
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Smith, C.,
```

```
repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                      repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       repeat_region
                repeat_region
                                                                       repeat_region
                                                                                                    repeat_region
                                                                                                                                                          repeat_region
                                                                                                                                                                                       repeat_region
                                                                                                                                                                                                                                               repeat_region
                                                                                                                                                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                                                                      repeat_region
                                                                                                                                                                                                                                                                                                                                 repeat_region
                                                                                                                                                                                                                                                                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           repeat_region
                                                                                                          /rpt family="AluJb"

/complement(15104. .15222)

/rpt family="MER21B"

15223. .15277

/rpt family="MER21B"
/rpt family="Alu6x"

complement(20645. .20929)
/rpt family="Alu5p"

complement (20930. .21218)
/rpt family="Alu5g"

complement (21233. .2132)
/rpt family="Alu6/F(R) AM"

complement (2133. .21614)
/rpt family="Alu8"

complement (21615. .22365)
/rpt family="MER21A-int"
                                                                                                                                                                                                                                                                                                                                                                                                                    /rpt family="Alu5x"
complement(15710. 16000)
/rpt family="Alu5o"
complement/1571.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /rpt_family="MER91A"
7761. 7848
/rpt_family="(CCCCG)n"
7868. 7873
/note="<30 qual SNGL region"
7874. 7931
/note="<30 qual single clone complement(8646. 8917)
                                                                                                                                                                                                               /rpt_family="L1MB3"
complement(19049. 19352)
/rpt_family="AluJo"
complement(19353. 19508)
/rpt_family="L1MB3"
/rpt_family="L1MB3"
complement(19509. 19929)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement (13251...13398)
/rpt_family="12"
complement (13736...14068)
/rpt_family="AluJb"
complement (14071...14366)
/rpt_family="AluSx"
                                                                                                                                                                                                                                                                                                   /rpt_family="G-rich"
complement(18986. .19008)
/rpt_family="L1MB3"
complement(19009. 19048)
                                                                                                                                                                                                                                                                                                                                                           /rpt_family="MER21B"
18847. .18889
                                                                                                                                                                                                                                                                                                                                                                                         /rpt_family="AluJo"
complement(16010. .16066)
/rpt_family="Tigger5"
complement(16069. .16668)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /rpt_family="Alusc"
complement(9217. .9
/rpt_family="L2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /rpt_family="Tigger5"
complement(15409. .15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              complement (9570. .9622)
/rpt_family="L2",
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /rpt_family="Tigger5"
15247. ,15319
                                                                                                                                                                                                                                                                         family="L1MB3"
Tement(19040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             _family="L2"
                                                                                                                                                                                     _family="L1MB3"
_. . . 20323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            family="(TA)n"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        family="AluY"
5. .13134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      family="FLAM_C"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            family="Aluy"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .13185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  13009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         . .8917)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .9271)
                                          8
                                                                       g
                                                                                               ίδ
                                                                                                                            밁
                                                                                                                                                         δ
                                                                                                                                                                                     밁
                                                                                                                                                                                                               S
                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                       ð
                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                              멼
                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 55.3%;
Best Local Similarity 99:7%;
Matches 1428; Conservative
                  134051
                                                                                                                                                                                                                                               134291
                                                                                                                                                                                                                                                                                                                                                            134411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         134891
                                                                                                                                134171
                                                                                                                                                                                       134231
                                                                                                                                                                                                                                                                                                       134351
                                                                                                                                                                                                                                                                                                                                                                                                                      134471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            134531
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     134591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   134711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           134771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  134951
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          135011
                                                                                                                                                                                                                    1892
                                                                                                                                                                                                                                                                                                                                                                                         1712
                                                                                                                                                                                                                                                                          1832
                                                                                                                                                                                                                                                                                                                                                                                                                                                1652
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTATGCCAACAAGCAGCTGGCGGGGTTGGTGGCCAACTACTACACCCCTCGCTGGCGGCT
                                                                                                                               GCCGCAGTTCTGGGGGCCCGCCCAGATCAGGGCTGTGCTGGGAGCTGTGCCCCGTGGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTATGCCAACAAGCAGCTGGCGGGGTTGGTGGCCAACTACTACACCCCTCGCTGGCGGCT
                                                                           CTACGAGCAGAACAGCCGCTACCAGCTGACCTTGTGGGGGCCAGAAGGCAACATCCTGGA
                                                                                            CTACGAGCAGAACAGCCGCTACCAGCTGACCTTGTGGGGGGCCAGAAGGCAACATCCTGGA
                                                                                                                                                            CCTGGCCTATGAGCTGCCGGCACTGGACGAGGTGCTGGCTAGTGACAGCCGCTTCTT
                                                                                                                                                                                                        CCTGGCCTATGAGCTGCCGGCACTGGACGAGGTGCTGGCTAGTGACAGCCGCTTCTT
                                                                                                                                                                                                                                              GGAGGCAAGAAGCGCCTACCTGAGCAAGGAGCTGGCCTCCCTGTTGAGGGCTGGAGGCGT
                                                                                                                                                                                                                                                              GGAGGCAAGAAGCGCCTACCTGAGGAAGGAGCTGGCCTCCTGTTGAGGGCTGGAGGCGT
                                                                                                                                                                                                                                                                                                      CTACGACCTGCTCGACCTCGGCAGGCAGTGCAGGAGCTGGTCAGCTTGTACTATGA
                                                                                                                                                                                                                                                                                                                            CTACGACCTGCTGGACCTCACTCGGCAGGCAGTGCAGGAGCTGGTCAGCTTGTACTATGA 1831
                                                                                                                                                                                                                                                                                                                                                           TGAGGCCTGGCGGCTGCTCACATCTGCTCCCTGGCCACCAGCCCCGCCTTCCG
                                                                                                                                                                                                                                                                                                                                                                                                                      GGTCAGGCGGCCGTCCCTACAGATGAATACCAGCATCTGGTACAACCGATCTGATGTGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                       GGTCAGGCGGCCGTCCCTACAGATGAATACCAGCATCTGGTACAACCGATCTGATGTGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCTCCGGAGTGTGTACAACTGCTCCGGGGAGGCCTGCAGGGGGCCACAATCGTAGCCCGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCTCCGGAGTGTGTACAACTGCTCCCGGGGAGGCCTGCAGGGGCCACAATCGTAGCCCGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTTTGCCGCCCGGCGGTATGGGGTCTCCCCACCCGGACGCAGGGGCCAGCGTGGAGGCTACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTTTGCCGCCGGCGGTATGGGGTCTCCCACCCGGACGCAGGGGCAGCGTGGAGGCTACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CATGGCTGAGCTGGGCTGGCGAAAGGAACCCAGTGCCAGATTTGGCAGCCTGGGTGACCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CATGGTAGGCACGGGCATGGCCCCGAGGGCATCAGCCAGAACGAAGTGGTCTATTCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CATGGTAGGCACGGGCATGGCCCCGAGGGCATCAGCCAGAACGAAGTGGTCTATTCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCTCCTGGTTCTGGACCTGTTTGCTGAGAGCCAGCCTGTGTATACCCGCACTGCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCCGCAGTTCTGGGGGGCCCCGCCCAGATCAGGGCTGTGCTGGGAGCTTGTGCCCCCGTGGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CATGGCTGAGCTGGGCGAAAGGACCCAGTGCCAGATTTGGCAGCCTGGGTGACCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGGAGCCCTAGAGGCTGTGAACGGAGGCCCAGAAGCTGCCCGCCTCTTCCCCAACTCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCAGGGCCAGCCCTTCATCTGGTGCATGCTGCACAACTTTGGGGGAAACCATGGTCTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCAGGCCAGCCCTTCATCTGGTGCATGCTGCACAACTTTGGGGGAAAACCATGGTCTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCTCCTGGTTCTGGACCTGTTTGCTGAGAGCCAGCCTGTGTATACCCGGCACTGCCTCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 1425; DB 9;
Pred. No. 4.4e-181;
0; Mismatches 5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 179146;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                   133992
                                             2131
                                                                                                     2071
                                                                                                                                                            2011
                                                                                                                                                                                                                                                                          1891
                                                                                                                                                                                                                                                                                                                                                                                           1771
                                                                                                                                                                                                                                                                                                                                                                                                                                                 1711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1531
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1171
                                                                          134052
                                                                                                                                  134112
                                                                                                                                                                                                                     1951
                                                                                                                                                                                                                                               134232
                                                                                                                                                                                                                                                                                                       134292
                                                                                                                                                                                                                                                                                                                                                                                                                      134412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              134472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1651
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     134532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     134652
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           134712
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  134772
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         134952
                                                                                                                                                                                        134172
                                                                                                                                                                                                                                                                                                                                                              134352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             134592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         134832
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  134892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
```

```
JOURNAL
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 11
AC002537/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                               COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               뮹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AUTHORS
                                                                                                                                                                                                                                                                                                        JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               133691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             133871
                              L Submitted (12-SEP-1997) Whitehead Institute/MIT Center for Genom Research, 320 Charles Street, Cambridge, MA 02141, USA On Apr 18, 1998 this sequence version replaced gi:992495. All respeats were identified using RepeatMasker: Smit, A.F.A. & Green, P. (1996-1997)
http://ftp.genome.washington.edu/RM/RepeatMasker.html.
**NOTE: This is a 'working draft' sequence. It currently consists of 6 contigs. The true order of the pieces is not known and their order in this sequence record is arbitrary. Gaps between the contigs are represented as arbitrary. Gaps between the contigs are represented as truns of N, but the exact sizes of the gaps are unknown. This record will be updated with the finished sequence as soon as it is available and the accession number will be preserved.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2372
                                                                                                                                                                                                                                                                                                                   2 (bases 1 to 114531)
Hawkins, T.L., Birren, B.W., Fasman, K.H., Nussbaum, C., Lander, E.S., McKernan, K., Munro, C., Richardson, P., Barna, N., Chang, A., Cooke, P. McKernan, K., Munro, C., Richardson, P., Barna, N., Chang, A., Cooke, P. Daly, M.J., Devon, K., Dewar, K., Forrest, C., Gage, D., Geraigery, K., Hagos, B., Harris, K., Huang, J., Hui, L., Jacotot, L., Kirby, A., Lane, M., MacKenzie, J., Marquis, N., McDermott, J., Molla, M., Lane, M., Machman, A., Naylor, J., Nusbaum, C., O'Connor, T., Morrow, J., Nachman, A., Naylor, J., Nusbaum, C., O'Connor, T., Morrow, J., Nachman, A., Naylor, J., Nusbaum, C., O'Connor, T., Milmer, F., Zentseva, I. and Zody, M.

Stilwell, J., Stone, C., Strickland, C., Sydney, K., Tang, L., Wilmer, F., Zentseva, I. and Zody, M.

Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AC002537 114531 bp DNA linear
Homo sapiens chromosome 17 clone hRPC864M4 map 17,
IN PROGRESS ***, 6 unordered pieces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Birren, B., Fasman, K., McKernan, K., Nusbaum, C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Lander, E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AC002537.1 GI:3063511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GAGGCCCCACGGCCTGCTGGTGGGGTTTGACCTGCCGGGGGATTGGAGGGAAATGACCTGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCAGCCGCGAGGAGACACTGTGGACCTGGCCAAGAAGATCTTCCTCAAATATTACCCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TTTCCTGGAGGCGCTGGTTGACAGTGTGGCCCAGGGCATCCCTTTCCAACAGCACCAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTTCCTGGAGGCGCTGGTTGACAGTGTGGCCCAGGGCATCCCTTTCCAACAGCACCAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAGGCCCCACGGCCTGCTGGGGGGTCTGACCTGGGGGGATTGGAGGGAAATGACCTGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CAGGGCAGATTCCAGGGCCCAGAGCTGGACAGACATCACAGGATAACCCAGGCCTGGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CAGGGCAGATTCCAGGGCCCAGAGCTGGACAGACATCACAGGATAACCCAGGCCTGGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               creecreeccecrcrreerearacarreeccaccacreeccrrerrrrececraarre
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCAGCCGCGAGGAGACACTGTGGACCTGGCCAAGAAGATCTTCCTCAAATATTACCCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (bases 1 to 114531)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HTGS_PHASE1.
sapiens (human)
                   preserved.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          sapiens chromosome 17,
65733: contig of 65733 bp in gap of unknown length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          clone hRPC864M4
                   length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Richardson, P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          *** S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3 18-APR-1998
SEQUENCING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Cooke, P.,
                                                                                                                                                                                                                                                                                                        Genome
                                                                                                                                                                                                                                              R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               133632
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             133692
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               133752
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           133872
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         133932
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             133812
                                                      8
                                                                                                     밁
                                                                                                                                    8
                                                                                                                                                                                 뮍
                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                               뮍
                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BASE COUNT
ORIGIN
                     밁
                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches 1429;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             source
                                                                                                                                                                                                                                                                 4473
                                                                                                                                                                                                                                                                                                                                                 4533
                                                                                                                                                                                                                                                                                                                                                                                                                               4593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4833
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1531
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                       GCTACGACCTGCTGGACCTCACTCGGCAGGCAGTGCAGGAGCTGGTCAGCTTGTACTATG
                                                                                                                                                                                                               TGGTCAGGCGGCCGTCCCTACAGATGAATACCAGCATCTGGTACAACCGATCTGATGTGT
                                                                                                                                                                                                                                                                                               TGCTCCGGAGTGTACAACTGCTCCGGGGAGGCCTGCAGGGGCCACAATCGTAGCCCGC
                                                                                                                                                                                                                                                                                                                                                                                      GCTTTGCCGCCCGGCGGTATGGGGTCTCCCACCCGGACGCAGGGGCAGCGTGGAGGCTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                       TCATGGCTGAGCTGGGCTGGCGAAAGGACCCAGTGCCAGATTTGGCAGCCTGGGTGACCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCATGGTAGGCACGGGCATGGCCCCCGAGGGCATCAGCCAGAACGAAGTGGTCTATTCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TCCAGGGCCAGCCCTTCATCTGGTGCATGCTGCACAACTTTGGGGGGAAACCATGGTCTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCCTCCTGGTTCTGGACCTGTTTGCTGAGAGCCAGCCTGTGTATACCCGCACTGCCTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCCTCCTGGTTCTGGACCTGTTTTGCTGAGAGCCAGCCTGTGTATACCCCGCACTGCCTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGCCGCAGTTCTGGGGGCCCCGCCCAGATCAGGGCTGTGCTGGGAGCTGTGCCCCCGTGGCC
                                                            GCTACGACCTGCTGGACCTCACTCGGCAGGCAGTGCAGGAGCTGGTCAGCTTGTACTATG
                                                                                                                                          TTGAGGCCTGGCGGCTGCTGACATCTGCTCCCTGGCCACCAGCCCCGCCTTCC 1770
                                                                                                                                                                                                                                                                 TGCTCCGGAGTGTACAACTGCTCCGGGGAGGCCTGCAGGGGCCACAATCGTAGCCCGC
                                                                                                                                                                                                                                                                                                                                                 GCTTTGCCGCCCGGCGGTATGGGGTCTCCCACCCGGACGCAGGGGCAGCGTGGAGGCTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCATGGTAGGCACGGGCATGGCCCCCGAGGGCATCAGCCAGAACGAAGTGGTCTATTCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TTGGAGCCCTAGAGGCTGTGAACGGAGGCCCAGAAGCTGCCCGCCTCTTCCCCAACTCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               <u>AGCCGCAGTTCTGGGGGCCCGCCCAGATCAGGGCTGTGCTGGGAGCTGTGCCCCGTGGCC</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      106934
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  65734
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         76181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             98663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /clone="hRPC864M4"
/clone lib="Peter de
27342 c 26578 g 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /organism="Homo sapiens"
/mol_type="genomic DNA"
/db_xref="taxon:9606"
/chromosome="17"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             76180: contig of 10447 bp in length
gap of unknown length
95382: contig of 19202 bp in length
gap of unknown length
gap of unknown length
98662: contig of 3280 bp in length
gap of unknown length
106933: contig of 8271 bp in length
114531: contig of 7598 bp in length.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             55.0%;
99.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 1415.6; DB 2;
Pred. No. 8.7e-180;
"" anatches 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               e Jong/
28985 (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 u
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               human PAC library"
t 343 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length
```

. 1530

1590 4534

4474

4234

1830

4294

4354

4414 1650 1470

4594

4654 1410 4714 1350 1290

4834

1230 4894

4774

1:

Gaps

1;

얁

two mRNA

Couet

putative cis-acting

gi:177126

```
PUBMED
REFERENCE
                                                                                                                                                                                            SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                  RESULT 12
HUM17BHYD
LOCUS
                                                                                                                                     REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                  뮹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              윰.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            γŞ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                            멅
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                     ACCESSION
                                                                                                                                                                                                                                                                                                     DEFINITION
                                                                                                                                                                                                                                          KEYWORDS
                                                                                                                                                                                                                                                         VERSION
                                 AUTHORS
                                                                             MEDLINE
                                                                                          JOURNAL
                                                                                                                      TITLE
                                                                                                                                                                                                                                                                                                                                                                                            3573
                                                                                                                                                                                                                                                                                                                                                                                                                         2491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3693
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3813
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3873
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4053
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2011
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1951
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1831
                                                                                                                                                                                                                                                                    21764 bp 'DNA
Human 17-beta-hydroxysteroid dehydrogenase
genes, complete coding regions and flanks.
M84472
 The, V.L., Labrie, C., Zhao, H.F., Couet, J., Lachance, Y., Simard, J., Leblanc, G., Cote, J., Berube, D., Gagne, R. and Labrie, F. Characterization of cDNAs for human estradiol 17 beta-dehydrogena
                                                                                                                                                                                                                       M84472.1 GI:806392
17-beta-hydroxysteroid
17-beta-dehydrogenase
                                                                                       Peltoketo,H., Isomaa,V., Maentausta,O. and Vihko,R. Complete amino acid sequence of human placental 17 beta-hydroxysteroid dehydrogenase deduced from cDNA FEBS Lett. 239 (1), 73-77 (1988)
                                                                                                                                                                Eukaryota; Metazoa; Chordata; Mammalia; Eutheria; Primates;
                                                                                                                                                                                            Homo sapiens
                                                                                                                                                                                                            Homo sapiens (human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TCCTGGCCTATGAGCTGCCGGCACTGGACGAGGTGCTGGCTAGTGACAGCCGCTTCT
                                                                                                                                                                                                                                                                                                                                                                                                            TECTEGECAGCTEGCTAGAGCAGGCCCGAGCAGCGGCAGTCAGTGAGGCCGAGGCCGATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGGAGGCAAGAAGCGCCTACCTGAGCAAGGAGCTGGCCTCCCTGTTGAGGGCTGGAGGCG
                                                                                                                                                                                                                                                                                                                                                                                            GGAGGCCCCACGGCCTGCTGGTGGGGGTCTGACCTGGGGGGGATTGGAGGGAAATGACCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GEAGGCCCCACGGCCTGCTGGTGGGGTCTGACCTGGGGGGATTGGAGGGAAATGACCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCAGGGCAGATTCCAGGGCCCAGAGCTGGACAGACATCACAGGATAACCCAGGCCTGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCAGGGCAGATTCCAGGGCCCAGAGCTGGACAGACATCACAGGATAACCCAGGCCTGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCTGGGTGGCCGGCTCTTGGTGATAGATTCGCCACCACTGGGCCTTGTTTTTCCGCTAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCTGGGTGGCCGGCTCTTGGTGATAGATTCGCCACCACTGGGCCTTGTTTTCCGCTAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCCAGCCGCGAGGAGACACTGTGGACCTGGCCAAGAAGATCTTCCTCAAATATTACCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCAGCCGCGAGGAGACACTGTGGACCTGGCCAAGAAGATCTTCCTCAAATATTACCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TTTTCCTGGAGGCGCTGGTTGACAGTGTGGCCCAGGGCATCCCTTTCCAACAGCACCAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTTTCCTGGAGGCGCTGGTTGACAGTGTGGCCCAGGGCATCCCTTTCCAACAGCACCAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACTATGCCAACAAGCAGCTGGCGGGGTTGGTGGCCAACTACTACACCCCTCGCTGGCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACTATGCCAACAAGCAGCTGGCGGGGTTGGTGGCCAACTACTACACCCCTCGCTGGCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TCTACGAGCAGAACAGCCGCTACCAGCTGACCTTGTGGGGGCCAGAAGGCAACATCCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TCTACGAGCAGAACAGCCGCTACCAGCTGACCTTGTGGGGGCCAGAAGGCAACATCCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGGAGGCAAGAAGCGCCTACCTGAGCAAGGAGCTGGCCTCCCTGTTGAGGGCTGGAGGCG
                                                                                                                                                   (sites)
                                              (sites)
                                                                                                                                                                                                                                         dehydrogenase; Alu
                                                                                                                                                                Craniata; Vertebrata; Euteleostomi; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                         repeat;
                                                                                                                                                                                                                                                                                                   linear
(EDH17B1
                                                                                                                                                                                                                                         estradiol
                                                                                                                                                                                                                                                                                                   PRI
                                                                                                                                                                                                                                                                                                  06-DEC-1999
EDH17B2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3634
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3754
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3814
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3934
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1950
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1890
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3694
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3874
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2070
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             source
                                            repeat_region
                                                                                                                                repeat_unit
                                                                                                                                                                                                                                       repeat_unit
                                                                                                                                                                                                                                                                                                repeat_unit
                                                                                                                                                                                                                                                                                                                                             repeat_unit
                                                                                                                                                                                                                                                                                                                                                                                                      repeat_unit
                                                                                                                                                                                                                                                                                                                                                                                                                                                  repeat_unit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             repeat_unit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         repeat_unit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   repeat_region
                                                                                                                                                                                            repeat_unit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4 (bases 1 to 21764)
Peltoketo, H., Isomaa, V., and Vihko, R.
Genomic organization and DNA sequences of human 17
beta-hydroxysteroid dehydrogenase genes and flanking regions.
Localization of multiple Alu sequences and putative cis-actin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Luu-The, V., Labrie, C., Simard, J., Leblanc, G. and Labrie, F. Structure of two in tandem human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     and assignment of the gene to chromosome 17: evidence species with distinct 5'-termini in human placenta Mol. Endocrinol. 3 (8), 1301-1309 (1989)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        On May 11, [4] report
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 elements
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   dehydrogenase genes
Mol. Endocrinol. 4 (2),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (sites)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        May 11, 1995 this sequence reports bases 6601-21788.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Biochem.
                                                                                                                                  /rpt_type=inverted
complement(6792. .7
                                                                            complement (7545. .7864)
/rpt_family="Alu"
                                                                                                                                                                                                                                                                                                                ָלְהָלָה
קַלָה
                                               /rpt_type=inverted
7730. .20156
                                                                                                                                                                                               complement (6631.
                                                                                                                                                                                                                                       complement (4553.
                                                                                                                                                                                                                                                                                                                                                                                                         complement (3960.
                               'note="duplicated regions
                                                                                                                                                                                                                                                                     1dr/
                                                                                                                                                                                                                                                                                                                                                complement (4122.
                                                                                                                                                                                                                                                                                                                                                                           /rpt_
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cell_type="leukocyte"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /map="17q11-q21"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /mol_type="genomic DN
/db_xref="taxon:9606"
/chromosome="17"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           organism="Homo sapiens"
                                                                                                                                                                                 note="right
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      c_type=dispersed
c_unit=10904. .1:
_type=tandem
_unit=13938.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          _type=direct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                _type=direct
                                                                                                                                                                                                               family="Alu"
type-1-
                                                                                                                                                                                                                                                                                                                     family="Alu"
type-1
                                                                                                          family="Alu"
type='--
                                                                                                                                                                                                                                                                                                                                                                                                                                       _family="Alu'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  _family="Alu'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         family="Alu"
                                                                                                       type=inverted
                                                                                                                                                                                                                                                     type=inverted
                                                                                                                                                                                                                                                                                                                                                         cype=inverted
                                                                                                                                                                                                                                                                                                                                                                              family="Alu"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           family="Alu"
                                                                                                                                                                                                                                                                                                                  :ype=inverted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   209
                                                                                                                                                                                                                                                                                                     (4405.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (1),
                                                                                                                                                                            268-275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 459-466 (1992)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .11038
    .20180
                                                                                                                                                                                                                                                                                                     .4538)
                                                                                                                                                                                                                                                                                                                                                                                                         .4104)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (1990)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 17 beta-hydroxysteroid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Lachance, Y., Zhao, H.F.,
                                 ᄗ
                                  and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      replaced
```

D2;

direct

```
gene
                                                                                                                                      exon
                                                                                                                                                                                                                                                  nRNA
                                                                                                                                                                                                                                                                                                                                                                        gene
                                         protein_bind
                                                                         CAAT_signal
                                                                                                                                                                                 prim_transcript
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            misc_difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  misc_difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                misc_difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             prim_transcript
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          misc_difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        misc_difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    repeat_unit
                                                                                                                                                                                                                                                                                           repeat_unit
                                                                                                                                                                                                                                                                                                                                          repeat_unit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                repeat_unit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            repeat_unit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   repeat_unit
                                                                                                                                                                                                                                                                                                                                                                                                                                                    repeat_unit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         repeat_unit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    7730. .13913
/gene="EDH17B1"
7730. .13913
/gene="EDH17B1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8095
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             7816. .11014
/gene="EDH17B1"
/note="G00-119-860"
                                         Complement (14865..14868)
/note="G00-127-970"
14897..14898
                                                                                                                                                                                                                                                                              complement(13914. .14049)
/rpt_family="Alu"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /rpt_type=direct
complement(11393.
/rpt_family="Alu"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="G in clone lambda17-HSD5;
G00-119-860"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             7809. .7815
                                                                                                                                    /gene="EDH17B2"
/note="G00-127-970"
|3999. .15062
                                                                                                                                                                                    13999.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    G00-119-860"
                                                                                                                                                                                              join[13999. 15062,15156. 15323,15471. 15650,15826. 15919,
16436. 16613,16700. 17244)
/gene="EDH17B2"
/note="000-127-970"
           /gene="EDH17B2"
/note="G00-127-970"
                                                                                                     /gene="EDH17B2"
/note="G00-127-970"
                                                                                                                                                                                                                                                                                                                                            'gene="EDH17B2"
|3914. .20156
bound_moiety="transcription factor AP-2"
                                                                                           number=
                                                                                                                                                                                                                                                                                                            note="G00-127-970"
                                                                                                                                                                                                                                                                                                                           gene="EDH1782"
                                                                                                                                                                                                                                                                                                                                                                                                      note="truncated"
rpt_family="Alu"
                                                                                                                                                                                                                                                                                                                                                                                                                                    gene="EDH1781"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene="EDH17B1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene="EDH17B1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene="EDH17B1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            'note="present in clone
ambda17-HSD3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         note="present in clone lambda17-HSD5; absent in clone ambda17-HSD3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene="EDH17B1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       note="G00-119-860"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              note="C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene="EDH17B1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        note="left arm"
rpt_family="Alu"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene="EDH17B1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene="EDH17B1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene="EDH17B1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    t_type=inverted
                                                                                                                                                                                                                                                                                                                                                                           type=direct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   type=direct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  type=direct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    family="Alu"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   amily="Alu"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               "C in clone lambda17-HSD5; T in clone lambda17-HSD3" .13490
                                                                                                                                                                                                                                                              pe=inverted
                                                                                                                                                                                                                                                                                                                                                                                                                                                         13913
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       11014
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     in clone lambda17-HSD5; T in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .11650)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              lambda17-HSD5; absent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  clone lambda17-HSD3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      lambda17-HSD3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              in clone
                                      Ş
                밁
                                                                          문
                                                                                                   Ś
                                                                                                                                      밁
                                                                                                                                                               Ś
                                                                                                                                                                                                  망
                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches 1428;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GC_signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SGO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       intron
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TATA_signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            intron
                                                                                                        1532
                                                                                                                                        5416
                                                                                                                                                                                                   5356
                                                                                                                                                                                                                                 1412
                                                                                                                                                                                                                                                                 5296
                                                                                                                                                                                                                                                                                             1352
                                                                                                                                                                                                                                                                                                                             5236
                                                                                                                                                                                                                                                                                                                                                            1292
                                                                                                                                                                                                                                                                                                                                                                                        5176
                                                                                                                                                                                                                                                                                                                                                                                                                        1232
                                                                                                                                                                                                                                                                                                                                                                                                                                                       5116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCTCCGGAGTGTGTACAACTGCTCCGGGGGAGGCCTGCAGGGGGCCACAATCGTAGCCCGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCCGCAGTTCTGGGGGCCCCGCCCCAGATCAGGGCTGTGCTGGGAGCTGTGCCCCGTGGCCG
                                                                                                                                                                    CATGGCTGAGCTGGGCTGGCGAAAGGACCCAGTGCCAGATTTGGCAGCCTGGGTGACCAG
                                                                                                                                                                                                     CATGGTAGGCACGGCCATGGCCCCGAGGGCCATCAGCCAGAACGAAGTGGTCTATTCCCT
                                                                                                                                                                                                                                                                                                                                                         CCAGGGCCAGCCCTTCATCTGGTGCATGCTGCACAACTTTGGGGGGAAACCATGGTCTTTT
                                                                                                                                                                                                                                                                                                                                                                                        CCTCCTGGTTCTGGACCTGTTTGCTGAGAGCCAGCCTGTGTATACCCGCACTGCCTCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                   CCTCCTGGTTCTGGACCTGTTTTGCTGAGAGCCAGCCTGTGTATACCCGCACTGCCTCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCCGCAGTTCTGGGGGCCCGCCCAGATCAGGGCTGTGCTGGGAGCTGTGCCCCGTGGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCTCCGGAGTGTGTACAACTGCTCCGGGGAGGCCTGCAGGGGCCACAATCGTAGCCCGCT
                                                                                                           CTTTGCCGCCCGGCGGTATGGGGTCTCCCACCCGGACGCAGGGGCAGCGTGGAGGCTACT
                                                                                                                                        CATGGCTGAGCTGGCGAAAAGGACCCAGTGCCAGATTTGGCAGCCTGGGTGACCAG
                                                                                                                                                                                                                                 CATGGTAGGCACGGGCATGGCCCCGGAGGGCATCAGCCAGAACGAAGTGGTCTATTCCCT
                                                                                                                                                                                                                                                                                             TGGAGCCCTAGAGGCTGTGAACGGAGGCCCAGAAGCTGCCCGCCTCTTCCCCCAACTCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     14902. .14913
/gene="EDH17B2"
/note="G00-127-970"
/14931
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /translation="Martvulitgcssgiglhlavrlasdpsgsfkvyatlrdlktqg
flugarallacppgsleticoldvrdsksvaaarervjegrvdylvchardeligplea
lgedavasvldvnvvgtvrmlqafipdmkrrgsgrvlvtgsvgglmglpfpdvycask
faleglceslavlllpfgvmlglflecgfvetrafmekvlgspeevldrtdhtffhrfyq
ylahskqvfreaaqnpeevaevfltalrapkptlryffterflelllmrlddpsgsny
vtamhrevfgdvpakaeagaeagggagpgaedeagrsavgddeelgdppaapq"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           15324. .15470
/gene="EDH17B2"
/note="G00-127-970"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .5156. .13343
'gene="EDH17B2"
'note="G00-127-970"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /groduct="17-beta-hydroxysteroid dehydrogenase"
/grotein_id="AAB16942.1"
db_xref="GT:177127"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BC_number="1.1.1.62"
|standard_name="estradiol 17-beta-dehydrogenase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |4925. .14931
|gene="EDH17B2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          number=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        note="G00-127-970"
oin(14966. .15062,15156. .1
6436. .16613,16700. .16969)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           number=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene="EDH17B2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            yene="EDH17B2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              54.9%;
99.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      e="G00-127-970"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           15323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 1414.6; DB 9
Pred. No. 1.7e-179;
0; Mismatches 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .15323,15471. .15650,15826.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 21764;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                  5595
                                              1651
                                                                              5535
                                                                                                             1591
                                                                                                                                         5475
                                                                                                                                                                         1531
                                                                                                                                                                                                     5415
                                                                                                                                                                                                                                     1471
                                                                                                                                                                                                                                                                                                1411
                                                                                                                                                                                                                                                                                                                                5295
                                                                                                                                                                                                                                                                                                                                                            1351
                                                                                                                                                                                                                                                                                                                                                                                            5235
                                                                                                                                                                                                                                                                                                                                                                                                                          1291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1231
                                                                                                                                                                                                                                                                    5355
                                                                                                                                                                                                                                                                                                                                                                                                                                                         5175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5115
```

<u>۲</u>

Ğ.

```
RESULT 13
AF331668
LOCUS
                                                                       ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 B,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  D)
                                                                                                                                                                                                                                             문
                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                            뭕
                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                              뮹
                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                            DEFINITION
                                       ORGANISM
                                                                                                                                                                                                                                             6435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6015
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5776
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1772
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5596
                                                                                                                                                                                                                                                                               2492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2012
Dromaius novaehollandiae
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleost
Archosauria; Aves; Palaeognathae; Casuariiformes; Dromaiidae;
                                                                                                          mRNA, com
AF331668
                                                                                                                                      AF331668.
Dromaius novaehollandiae
                                                       Dromaius novaehollandiae
                                                                                         AF331668.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCAGCCGCGAGGAGACACTGTGGACCTGGCCAAGAAGATCTTCCTCAAATATTACCCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCTGGCCTATGAGCTGCTGCCGGCACTGGACGAGGTGCTGGCTAGTGACAGCCGCTTCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGAGGCAAGAAGCGCCTACCTGAGCAAGGAGCCTGCCCCCTGTTGAGGGGCTGGAGGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGTCAGGCGGCCGTCCCTACAGATGAATACCAGCATCTGGTACAACCGATCTGATGTGTT
                                                                                                                                                                                                                                                               CAGGGCAGATTCCAGGGCCCAGAGCTGGACAGACATCACAGGATAACCCAGGCCTGGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                 CAGGGCAGATTCCAGGGCCCAGAGCTGGACAGACATCACAGGATAACCCAGGCCTGGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTGGGTGGCCGGCTCTTGGTGATAGATTCGCCACCACTGGGCCTTGTTTTTCCGCTAATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TTTCCTGGAGGCGCTGGTTGACAGTGTGGCCCAGGGCATCCCTTTCCAACAGCACCAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TTTCCTGGAGGCGCTGGTTGACAGTGTGGCCCAGGGCATCCCTTTCCAACAGCACCAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTATGCCAACAAGCAGCTGGCGGGGTTGGTGGCCCAACTACTACACCCCTCGCTGGCGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTACGAGCAGAACAGCCGCTACCAGCTGACCTTGTGGGGGCCAGAAGGCAACATCCTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTACGAGCAGAACAGCCGCTACCAGCTGACCTTGTGGGGGGCCAGAAGGCAACATCCTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCTGGGCAGCTGGCTAGAGCAGGCCGAGCAGC-GCAGTCAGTGAGGCCGAGGCCGATTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTACGACCTGCTGGACCTCACTCGGCAGGCAGGCAGGAGCTGGTCAGCTTGTACTATGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTACGACCTGCTGGACCTCACTCGGCAGGCAGTGCAGGAGCTGGTCAGCTTGTACTATGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGAGGCCTGGCGGCTGCTGCTCACATCTGCTCCCTGGCCACCAGCAGCCCCGCCTTCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGTCAGGCGGCCGTCCCTACAGATGAATACCAGCATCTGGTACAACCGATCTGATGTGTT
                                                                                                                                                                                                                                           GAGGCCCCACGGCCTGCTGGTGGGGTCTGACCTGGGGGGGATTGGAGGGAAATGACCTGCC
                                                                                                                                                                                                                                                                                                                                            GAGGCCCCACGGCCTGCTGGGGGGTCTGACCTGGGGGGATTGGAGGGAAATGACCTGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTGGGTGGCCGGCTCTTGGTGATAGATTCGCCACCACCACTGGGCCTTGTTTTCCGCTAATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCAGCCGCGAGGAGACACTGTGGACCTGGCCAAGAAGATCTTCCTCAAATATTACCCCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTATGCCAACAAGCAGCTGGCGGGGTTGGTGGCCAACTACTACCACCCCTCGCTGGCGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCTGGCCTATGAGCTGCTGCCGGCACTGGACGAGGTGCTGGCTAGTGACAGCCGCTTCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGAGGCAAGAAGCGCCTACCTGAGCAAGGAGCTGGCCTCCCTGTTGAGGGCTGGAGGCGT
                                                                                                                        complete
                                                                                         GI:14861377
                                                                                                                                                          2949 bp
                                                           (emu)
                                                                                                                                          lysosomal
                                                                                                                                                       mRNA
                                                                                                                                   alpha-N-acetyl glucosaminidase
                                                                                                                                                            linear
                     Euteleostomi;
                                                                                                                                                          VRT 18-JUL-2001
                                                                                                                                                                                                                                             6487
                                                                                                                                                                                                                                                                             2544
                                                                                                                                                                                                                                                                                                                                            2491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6014
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2071
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2011
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1951
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1891
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5775
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1831
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1711
                                                                                                                                                                                                                                                                                                                                                                                6374
                                                                                                                                                                                                                                                                                                                                                                                                               2431
                                                                                                                                                                                                                                                                                                                                                                                                                                                 6314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5895
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
MEDLINE
PUBMED.
REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
AUTHORS
TITLE
                                              S
                                                                                    멍
                                                                                                             Ş
                                                                                                                                               뭕
                                                                                                                                                                                   Ś
                                                                                                                                                                                                                       B
                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                       5
                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches 1541;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SgS
                                                       458
                       393
                                                                                        333
                                                                                                                        398
                                                                                                                                                          273
                                                                                                                                                                                         338
                                                                                                                                                                                                                                                                                              153
                                                                                                                                                                                                                           213
                                                                                                                                                                                                                                                           278
                                                                                                                                                                                                                                                                                                                              218
                                                                                                                                                                                                                                                                                                                                                                                               158
                                                                                                                                                                                                                                                                                                                                                              93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   86
                                                                                                                                                                                                                                                                                                                                                                                                                                 \mathfrak{Z}_{\mathfrak{Z}}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2 (bases 1 to 2949)
Aronovich,E.L. and Whitley,C.B.
Direct Submission
Submitted (21-DE-2000) Peds & 1
Minnesota, 420 Delaware St. SE,
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 (bases 1 to 2949)
Aronovich, E.L., Johnston, J.M., Wang, P., Giger, U. and Whitley, C.B.
Molecular basis of mucopolysaccharidosis type IIIB in emu (Dromaius novaehollandiae): an avian model of Sanfilippo syndrome type B Genomics 74 (3), 299-305 (2001)
21309063
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Dromaius.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   11414757
                                                                                                                                                                                                                                                                                                                                                                                         GGGCGGGCAGGCGACGACGGCCGGGAGGCGGCGGCGGCGCGCGCTGGCCGGCTGGCCGGCT
                       CGAGATCCGCGCCACCGCCCCCGGCAGGTTCCGCTACTACCAGAACGTCTGCACCCAGAG
                                                     GGAGCTGACCGAGGCCCAACAGGTACCGCTATTACCAGAATGTGTGCACGCAAAG
                                                                                                             | ccacerosecroegerocegerocaecroegecaecegeecaecegeecege
                                                                                                                                                          GÉTGGACACCTACCGGGGGCACTCGCCGCCCGGCGCCGTGGCCGTGGCCGTGGCCGT
                                                                                                                                                                                                                                                           GCTGGGCCCGCCGCCGCCGTGGCGCTGTCGGTGGACGGCTCGCTGGCGGCGGCGG
                                                                                                                                                                                                                                                                                                                              GCTGGGGCCAGGCCGGCCGACTTCTCCGTGTCGGTGGAGCGCGCTCTGGCTGCCAA
                                                                                                                                                                                                                                                                                                                                                                GACGGCTGGCTGCCATGATGGCGGCGGCGGCCGGCGGCGCCGCCGCCGCCGCCGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GACCATGGAGGCGGTGGCCGCGCGGCGGTGGGGGTCCTTCTCCTGGCCGGGGCCGG
                                                                                         ccaccicrocingercceeeaagecagercceecingeceeaaccceerecceeerecceec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /codon_start=1
//protein_id="Aysosomal alpha-N-acetyl glucosaminidase"
//protein_id="AXK73654.1"
//protein_id="AXK73654.1"
//db_xref="GI:14861378"
//translation="MAPVRLTALAAMMAARAASPELPPVRAGAEDARQEAAVRALA
RRLIGERAAAVALSUOGSLAAGGLDTYRVHSSPEGAAVAVAGSSGVAAAAGLHRYLR
DLCGCHLSWSGRQLRLPDPLPRVPAEIRATAPGRFRYYQNVCTQSYSFAWWDWARWEE
EIDWWALISGINLALAFAGQLAYWQRVYLSLGLMQSEIDBYFTGBAFLAWNRMGNLHGW
AGPLERAWHLKQLYQOYRVLEBRENGSLGMITULDFAGGIVPQGVLRAFPERVNTRLGGW
SHFDCTYSCTYLLDPBDPMFQVIGTLFLKELIKEFGTDHIYSADTFNEMNPLSSDPAY
LSRVSSAVFRSMTGADDFAVMIAWGGWLFQHQDDFWQPAQVRALLHGVPLGRMIVLDLF
AESREVYQWTESFQOPFIWOHLHNFGGMLFQHQBDFWQPAQVRALLHGVPLGRMIVLDLF
AESREVYQWTESFYQOFFIWGHUNDTEWYNKSDVYEAWALLSAGAELGSSPTFGYDL
ADVTRQAAQQLVESYLISIRQAFQSRELBELLTAGGTULVPLLLSAGAELGSSPTFGYDL
ADVTRQAAQQLVESYLISIRQAFQSRELBELLTAGGTULVPLLLSAGAELGSSPTFGYDL
GRWLESARAVAISDREAEQYELMARNQVTLWGPNGNILDYANKQLGGIVLDYYGVRWS
LFVSALVESLMSGSPFHQDQFRQAVFQVERGFIYNKKTYPTAPVGDTLEISKKIFLKY
VPSAWEEGBACPA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      YPSAMRRGRAGPA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /organism="Dromaius novaehollandiae'
/mol_type="mRNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /mol_type="mRNA"
/db_xref="taxon:8790"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            note="NAGLU"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1025 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  43.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1038 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 1114.2; DB 5
Pred. No. 2.8e-139;
0; Mismatches 668;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Inst. Human Genetics, University, Minneapolis, MN 55455, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ູ
--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
```

Length

6,

Gaps

157

277

152 217 92

유

GTGTGTACAACTGCTCCGGGGAGGCCTGCAGGGGCCACAATCGTAGCCCGCTGGTCAG 1657	1598 GA
CGCCCGCGGTATGGGGTCTCCCACCCGGACGCACGGGCAGGGGAGGCTGACTGCTCCG 1597	1538 C 1470 G
TGGGCTGGCGAAAGG	13
GCATC	353
CTAGAGGCTGTGAACGGAGGCCCAGAAGCTGCCCGCCTCTTCCCCAACTCCACCATGGT 1417 	1358 CC 1293 CG
CAGCCCTTCATCTGGTGCATGCTGCACAACTTTGGGGGAAACCATGGTCTTTTTGGAGC 1357	1298 C 1233 G
GGTTCTGGACCTGTTGCTGAGAGCCAGCCTGTGTATACCCGGACTGCCTCCTTCCAGGG 1297	1238 G
GTTCTGGGGGCCCCCAGATCAGGGCTGTGCTGGAAGCTGTGCCCGTGGCCGCCTCCT 1237	1178 G
TGCAGTGGATACTGAGGCTGTGTGGCTGCTCCAAGGCTGGCT	1118 T
CCTTCCTCAGAGCCCTCCTACCTTGCCGCAGCCACCACCGCCGTCTATGAGGCCATGAC 1117	1058 A 993 G
GATCAAAGAGTTTGGCACAGACCACATCTATGGGGCCGACACTTTCAATGAGATGCAGCC 1057	998 Q 933 Q
CCTTCTGGCTCGGGAGGACCCCATATTCCCCATCATCGGGAGGCTCTTCCTGCGAGAGCT 997	938 C 873 C
GGTCAATGTCACGAAGATGGGGAGTTGGGGGCACTTTAACTGTTCCTACTCCTGCTCCTT 937	878 C
CCAGTGCTGCATTCGCGGGGATGTTCCCGAGGCTGTCACCAGGGTGTTCCCTCA 877	818 CC 753 CA
CATCAAGCAGCTTTACCTGCAGCACCGGGTCCTGGACCAGATGCGCTCCTTCGGCATGAC 817	758 (693 (
GGCCTGGGGGCGAATGGGCAACCTGCACACCTGGGATGGCCCCCTGCCCCCCCC	698
CTGGCCTTGGGCCTGACCCAGGCAGAGATCAATGAGTTCTTTACTGGTCCTGCCTTCCT 697	638 C
AATGGCATCAACCTGGCACTGGCCTGGAGCGGCCAGGAGGCCATCTGGCAGCGGGTGTA 637 	578 G
CTACTCCTTCGTGTGGGACTGGGCCCGCTGGGAGCAGAGATAGACTGGATGGCGCT 577	518 (453 (

유정

뫄

8 8 8 8 8 8 8 8 8 8

Ş

RESULT 14
AF003255
LOCUS
LOCUS
DEFINITION Mus
ACCESSION AF0
VERSION AF0
VERSION AF0
VERSION Mus
COURCE Mus
COURCE Mus
COURCE Mus
COURCE Mus
AUTHORS L1,
AUTHORS Anae

TITLE MG
JOURNAL PI
MEDLINE 20
PUBMED 10
REFERENCE 2
AUTHORS L1
TITLE C1

JOURNAL

A S

유

8 8 8 8 8 8 8

AF003255

AF003255

ON AF003255

AF003255.1 GI:3329360

S

Mus musculus (house mouse)

ISM Mus musculus (house mouse)

II,H.H., Yu.W.H., Rozengurt,N., Zhao,H.Z., Lyons,K.M.,

Anagnostaras,S., Fanselow,M.S., Suzuki,K., Vanier,M.T. and

Neuffeld,E.F.

II,H.H., Yu.W.H., Rozengurt,N., Zhao,H.Z., Lyons,K.M.,

Anagnostaras,S., Fanselow,M.S., Suzuki,K., Vanier,M.T. and

Neuffeld,E.F.

Mouse model of Sanfilippo syndrome type B produced by targeted

disruption of the gene encoding alpha-N-acetylglucosaminidase

Proc. Natl. Acad. Sci. U.S.A. 96 (25), 14505-14510 (1999)

NE 10586735

II,H.H., Zhao,K.W. and Neufeld,E.F.

Cloning and characterization of gene and cDNA encoding mouse

alpha-N-acetylglucosaminidase

```
В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
AUTHORS
TITLE
                                                                                   δ
                                                                                                                                                                 昂
                                                                                                                                                                                             8
                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                      B
                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BASE COUNT
ORIGIN
                                                                                                                    맑
                                                                                                                                        8
           吊
                                δ
                                                              뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best Local Sim
Matches 1021;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CDS
                                                                                                                                                                                                                                                                                                                                          6364
                                                                                                                                                                                                                                                                                                                                                                                               6304
                                                                                                                                                                                                                                                                                                                                                                                                                          1116
           6724
                                                                                                                                                                                                                                6484
                                                                                                                                                                                                                                                                                    6424
                                                              6664
                                                                                          1476
                                                                                                                      6604
                                                                                                                                                                                                    1356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3 (bases 1 to 7721)
Li,H.H., Zhao,K.W. and Neufeld Direct Submission
Submitted (08 wAy-1997) Biol.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                             GTAGGCACGGGCATGGCCCCCGAGGGCATCAGCCCAGAACGAAGTGGTCTATTCCCTCATG 1475
                                                                                                                                                                                           GGCCAGCCCTTCATCTGGTGCATGCTGCACAACTTTGGGGGAAAACCATGGTCTTTTTGGA
                                                                                                                                                                                                                                                                                                      CTGGTTCTGGACCTGTTTGCTGAGAGCCAGCCTGTGTATACCCGGCACTGCCTCCCTTCCAG 1295
                                                                                                                                                                                                                                                                                                                                          CAGTTCTGGGGGCCCCTCTCAAATCAGGGCTGTGCTGGAGGCCGTGCCCCGTGGTCGTCTC
                                                                                                                                                                                                                                                                                                                                                             CAGTTCTGGGGGCCCCCCCCCAGATCAGGGCTGTGCTGCCTGGGAGCTGTGCCCCCTTGCCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                  GCTGAGCTGGGCTGGCGAAAGGACCCAGTGCCAGATTTGGCAGCCTGGGTGACCAGCTTT
                                                                                                                      GTCGGCÁCTGGCÁTAGCCCCCGÁGGGCÁTTGGCCAGAATGAAGTGGTCTATGCTCTCATG
                                                                                                                                                                           GCCCTCGAGGATGTGAACCGAGGCCCCCAGGCAGCTCGCCTCTTCCCTAACTCCACCATG
                                                                                                                                                                                                                                GGCCAGCCCTTCATCTGGTGTATGCTCCACAACTTTGGGGGCAACCATGGCCTGTTTGGA
             GCCATCCGCCGATACGGGGTCTCCCAGCCTGATGCCGTGGCAGCTTGGAAGCTCCTACTC
                                     GCCGCCCGGCGGTATGGGGTCTCCCACCCGGACGCAGGGGCAGCGTGGAGGCTACTGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1735
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /translation="MEAAGLAVILGFILLAGGSVGDEAREAKAVRELVVRLLGPGPAA
NFL/SVERALADESGLDTYSLSGGGGVEPVLVRGSTGVAAAGLHRYLRDFGGCQVAMS
SAQLHLFMPLFAVPGGLTETTPNRYRYYQNUCTHS YSFVMPDWARWGELDWMALMGI
NLALAWNGGEAIWGRVYLALGLTOSEIDTYFTGFAFLAWGRWGNLHTWDGPLPRSWHL
SQVYLQHRILDRWRSFGWIPVLPAFAGHVFKAITRVFPQNWVIKLGSWGHFWCSYSCS
FILLAPGDPMFPLIGNLFLRELITKEFGTDHIYGADTFNEMQPPFSDFSYLAATTAAVYE
AMVTVDPDAVWLLGGWLFQHQPGPFGQOIRAVLEAVFRGRLLYLDLFAESHFVYMIT
ASFHGQPFIWCMLHNFGGNHGLFGALEDVNRGPQAARLFFXSTMVGTGIAPEGIGNE
VVYALMAELGWRKDPVPDLMAWVSSFAIRFYGSQPDAVAAWKLLLRSVYNCSGEACS
GHRRSPLVTKRFSLGWSTAWYNRSDVFEAWRLLTTAANLTTSPAFRYDLLDVTRQAV
QELVSLCYEEARTAYLKGELDLLLRAGGLLVYKLLFTUDELLASSSHFLGTWLDQAR
KAAVSEABAQFYEQNSRYQTITMGPEGNILDVANQLAGCLADYYQFRWCLFLGTLAH
KLARGVFFQQHFEEKNVFPLEQAFVYNKKRYPSQPRGDTVDLSKXIFIKXHFQPDSL"
35 a 2050 c 2056 g 1880 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CA 90095-1737, USA Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Zhao, K.W. and Neufeld,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /organism="Mus musculus"
/mol_type="genomic DNA"
/strain="129sv"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /product="alpha-N-acetylglucosaminidase"
/protein_id="AAC26842.1"
/db_xref="GI:3329361"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3918. .4174,6311. .>7515)
/product="alpha-N-acetylglucosaminidase"
join(206. .582,1160. .1307,1966. .2112,2287.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       chromosome="1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           in(<206. .582,1160. .1307,1966. .2112,2287.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  _xref="taxon:10090"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                34.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 874.8; DB 10;
Pred. No. 1.7e-107;
0; Mismatches 217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Chem.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .
H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    UCLA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      10833
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Le conte
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               7721;
                                                                                                                                                                                                                                                                                                                                                                                                                                                   9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .2372,3918.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ave.,
                                                                                                                                                                                                      1415
                                                                                                                                                                                                                                                            . 1355
                                                                                           1535
                                                                                                                                                                                                                                6543
                                                                                                                                                                                                                                                                                      6483
                                                                                                                                                                                                                                                                                                                                          6423
                                                                                                                                                                                                                                                                                                                                                                                                6363
                                                                                                                                                                                                                                                                                                                                                                                                                            1175
             6783
                                                                                                                                                                           6603
                                                                                                                                                                                                                                                                                                                                                                     1235
                                     1595
                                                                 6723
                                                                                                                       6663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      F
C
                                                                                                                                                                                                                                                                                                                                                                                                                                                   1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .4174,
                                                                                                                                                                                                                                 RESULT 15
AF363242
LOCUS
                                     REFERENCE
AUTHORS
TITLE
JOURNAL
REFERENCE
                                                                                                                                                             ACCESSION
VERSION
KEYWORDS
                                                                                                                                   SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5
                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                      멍
                                                                                                                                                                                                                                                                                                                                                                             5
                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                               5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  日
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                    맑
                                                                                                                                                                                                                    DEFINITION
FOURNAL
```

```
7498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              7444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               7384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 7264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2076
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2016
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  7144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  7084
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1896
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      7024
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1836
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6964
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1776
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1596
                                                                                            Eukaryota; Metazoa; Chordata; Craniata; Mammalia; Eutheria; Rodentia; Sciurognati 1 (bases 1 to 10938) Gloeckmer, C.J., Breitling, R., Moeller, G. Characterization of HSD17B1 gene in mice
2 (bases 1 to 10938)
Gloeckner, C.J., Breit
Direct Submission
Submitted (23-MAR-200
                                                                                                                                                                                                                                                                  AF363242 10938 bp DNA linear R
musculus N-acetyl-glucosaminidase (Naglu) and
17-beta-hydroxysteroid dehydrogenase (Hsdl7bl) genes,
AF363242
AF363242.1 GI:20385159
                                                                                                                                                                                                         Mus musculus
                                                                             Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGGCGGCCGTCCCTACAGATGAATACCAGCATCTGGTACAACCGATCTGATGTGTTTGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGAAGTGTCTACAACTGCTCTGGGGAGGCGTGCAGTGGGCACAATCGAAGCCCCGTTGGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGGAGTGTGTACAACTGCTCCGGGGAGGGCCTGCAGGGGGCCACAATCGTAGCCCGCTGGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GIGGCCGGCTCTTGGTGATAGATTCGCCACCACTGGGCCTTGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCGCGAGGAGACACTGTGGACCTGGCCAAGAAGATCTTCCTCAAATATTACCCCGGCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gccaacaaccaecreeceecreeceaecaaccaecaecaecaecaecreeceecreeceecreeceecreec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GAGCAGAACAGCCGCTACCAGCTGACCTTGTGGGGGCCAGAAGGCAACATCCTGGACTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCAAGAAGCGCCTACCTGAGCAAGGAGCTGGCCTCCCTGTTGAGGGCCTGGAGGCCTCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GACCTGCTGGATGTCACCCGCCAAGCCGTGCAGGAGTTGGTCAGCCTGTGCTATGAGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GACCTGCTGGACCTCACTCGGCAGGCAGTGCAGGTGCAGCTTGTTACTATGAGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gccraecaecraecreacarcaecreccreecraeceaecaececeeccreecraec
                                                                                                                                                                                                                                                                                                                                                                                                                                                            CAGCCTGACTCTTTGTGACAGATTAGCCATCGCAGGGACCTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TTGGGGACTCTGGCTCACAGCCTAGCCAGAGGTGTCCCCTTCCAACAGCACGAGTTTGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTGGAGGCGCTGGTTGACAGTGTGGCCCAGGGCATCCCTTTCCAACAGCACCAGTTTGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCCAATAAGCAACTGGCAGGACTGGTGGCTGATTACTACCAGCCTCGCTGGTGCCTCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GAACAAAACAGCCGCTACCAGATTACCCTGTGGGGGCCCCGAGGGCAACATTTTGGATTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGTACCTGGTTGGATCAGGCCCGGAAAGCGGCCGTAAGTGAGGCCGAGGCCCAGTTCTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGCAGCTGGCTAGAGCAGGCCGAGCAGCGGCAGTCAGTGAGGCCGAGGCCGATTTCTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTCTATAAACTCCTGCCTACACTAGATGAGCTGCTGGCTAGCAGCAGCCACTTCTTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gccTATGAGCTGCTGCCGGCACTGGACGAGGTGCTGGCTAGTGACAGCCGCTTCTTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCAAGGACCGCCTACCTGAAGCAAGAGCTTGATCTCCTGCTCAGGGCTGGAGGCCTCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCTTGGCGACTGCTGTTAACAGCTGCCCCAAACCTGACCACCAGCCCAGCCTTCCGCTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCCCGAGGGGACACCGTGGACCTCTCCAAGAAGATCTTCCTCAAATATCACCCC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               <u>AAGAACGTTTTCCCACTCGAGCAGGCTTTCGTTTACAACAAGAAGAGGTACCCCAGTCAG</u>
                                                                                                                                                                                                                                 (house mouse)
                                                                                                                                                                 Craniata; Vertebrata; Euteleostomi; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                             and
                                                                                                                                Adamski
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  7541
                                                                                                                                                                                                                                                                                                                                                             ROD
                                                                                                                                                                       Murinae; Mus.
                                                                                                                                                                                                                                                                                                                     complete cds.
                                                                                                                                                                                                                                                                                                                                                             02-MAY-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      7383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2075
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      7203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2015
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        7143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1895
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          7023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6963
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1775
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6903
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1955-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      7497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    7443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          7083
```

(23-MAR-2001)

Institute

for

Experimental

Genetics

Breitling, R., Moeller, G. and Adamski, J.

```
В
                                            S
                                                                                    В
                                                                                                                 Ś
                                                                                                                                                                                                                                      BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                             Query Match
Best Local S
Matches 1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 source
                                                                                                                                                               1021;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GSF-National Research Center for Environment and Health, Ingolstaedter Landstr. 1, Neuherberg 85764, Germany Location/Qualifiers
                                                                                                                                                                            Similarity
                 CAGTTCTGGGGCCCCTCTCAAATCAGGGCTGTGCTGGAGGCCGTGCCCCGTGGTCGTCTC
                                          CAGITICIGGGGGCCCGACAICAGGCTGTGCTGGGAAGCTGTGCCCCGTGGCCGCCTC
                                                                                                               2466
                                                                                                                                                             34.0%;
ilarity 82.1%;
Conservative
                                                                                                                                                                                                                                                       ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAMHQEAFSNLQTQENAKAGAQVPGVSDTASSALICLPECAIPRVASELGWSASDKPG
QDNSCYQQKI"
1 2898 c 2903 g 2668 t 3 others
                                                                                                                                                                                                                                                                                                   AMUTUDPDAVMILLOGMIFOHOPOFMGFSQIRAVLEAVPRĞRILLVIDIFAESHPVYMHT
ASFHGOPFIMCMIHNEGANEDVNRGBOARRI FPNSTMYGTGIAFEGIGQNE
VVYALMAELGMRKDPYDEDLMAWYSEFAIRKYVSQPDAVAAMKLILLRSYVNGGEDAGE
GHNRSPIVKRFSLOMSTAVMYNRSDVFBAMKLILTAAPNITTSPAFRYDILDVTRQAV
GELVSICVFBEARTAYIKQEIDILIRAGGILVYKILFILDEILASSHFILIGTMIDQAR
KAAVSBABAOFYFGONSKYOITIMGFEGNILDYKLLFGIVADYYOPBRACHTLIGTMIDQAR
KAAVSBABAOFYFGONSKYOITIMGFEGNILTYKLIFAILVADYYOPBRACHTLIGTMADAK
SLARGVPFQOHEFEKNVFPLBQAFVYNKKRYPSOPRGDTVDLSKKIFIKYHPQPDSI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /translation="MEAAGLAVIIGFILLLAGGSVGDEAREAKAVRELVVRLIGPGPAA
NFLVSVERALADESGLDTYSLSGGGGVEVLVRGSTGVAAAGLHRYLRDFCGCOVAWS
SAQLHLPWELFAVPDGLTETTPNRYRYYQNUCTHSYSFWADDHAFWEGEIDWALNGI
NLALAMNGQEALWQRVVLALGLTQSEIDTYFTGPAFLAWGRMGNLHTWDGFDLPRSWHL
SQVYLQHRILDRMRSFGMIPVLPAFAGHVPKAITRVFPQVNVIKLGSWGHFNCSYSCS
FLLAFGDPMFPLIGNLFLRELTKEFGTDHIYGADTFNEMQPPFSDPSYLAATTAAVYE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="Naglu"
/product="N-acetyl-glucosaminidase"
/product="N-acetyl-glucosaminidase"
/product="N-acetyl-glucosaminidase"
                                                                                                                                                                                                                                                                                                                                                                                           /codon_start=1
/product="17-beta-hydroxysteroid dehydrogenase"
/protein_id="AAM21195.1"
/db_xref="G1:20385161"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /codon_start=1
/product="N-acetyl-glucosaminidase"
/protein_id="AAM21194.l"
/db_xref="GI:20385160"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      note="similar to GenBank Accession Number CAA61770"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       join(8512. .8608,8696. .88
9730. .9904,10004. .10324)
/gene="Hsd17b1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            join(<206. .582,1160. .1307,1966. .2112,2287.
3918. .4174,6311. .>7515)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="Naglu"
join(<206. .5)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /tissue_type="spleen"
<206. .>7515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /db_xref="taxon:10090"
/sex="female"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       organism="Mus musculus"
/mol_type="genomic DNA"
/strain="129/SvEvTacfBr"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 note="similar to GenBank Accession Number AAB88084.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene="Naglu"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 . .10938
                                                                                                                                                               0
                                                                                                                                                           Score 874.8; DB 10;
Pred. No. 1.6e-107;
0; Mismatches 217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .2112,2287.
                                                                                                                                                               Indels
                                                                                                                                                                                           Length
                                                                                                                                                             6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .2372,3918.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .2372,
                                                                                                                                                             Gaps
                 6423
                                                   1235
                                                                                        6363
                                                                                                                          1175
                                밁
                                                               δ
                                                                                                       뮍
                                                                                                                                    8
                                                                                                                                                                            밁
                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                               멂
                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                          2196
                                                                                                                                                                                                                2136
                                                                                                                                                                                                                                                                                                                                                              2016
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        7084
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1896
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1836
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6964
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6844
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1236
GTGGCCGGCTCTTGGTGATAGATTCGCCACCACTGGGCCTTGTT
                                                                                                                                                                                                         CTGGAGGCGCTGGTTGACAGTGTGGCCCAGGGCATCCCTTTCCAACAGCACCAGTTTGAC
                                                                                                                                           GCCAATAAGCAACTGGCAGGACTGGTGGCTGATTACTACCAGCCTCGCTGGTGCCTCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTCTATAAACTCCTGCCTACACTAGATGAGCTGCTGGCTAGCAGCAGCCACTTCTTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCCTGGCGGCTGCTCACATCTGCTCCCTCCCTGGCCACCAGCCCGCCTTCCGCTAC
                                                             CCGCGAGGAGACACTGTGGACCTGGCCAAGAAGATCTTCCTCAAATATTTACCCCGGCTGG
                                                                                                         AAGAACGTTTTCCCACTCGAGCAGGCTTTCGTTTACAACAAGAAGAGGTACCCCAGTCAG
                                                                                                                                                                              TTGGGGACTCTGGCTCACAGCCTAGCCAGAGGTGTCCCCTTCCAACAGCACGAGTTTGAG
                                                                                                                                                                                                                                                                                    gccaacaagcagcregegerregegecaacracracaccccregeregegerrite
                                                                                                                                                                                                                                                                                                                            GAACAAAACAGCCGCTACCAGATTACCCTGTGGGGGCCCGAGGGCCAACATTTTGGATTAT
                                                                                                                                                                                                                                                                                                                                                            GAGCAGAACAGCCGCTACCAGCTGACCTTGTGGGGGGCCAGAAGGCAACATCCTGGACTAT
                                                                                                                                                                                                                                                                                                                                                                                                   GGTACCTGGTTGGATCAGGCCCGGAAAGCGGCCGTAAGTGAGGCCCAAGGCCCAGTTCTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                   GCCTATGAGCTGCTGCCGGCACTGGACGAGGTGCTGGCTAGTGACAGCCGCTTCTTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCAAGGACCGCCTACCTGAAGCAAGAGCTTGATCTCCTGCTCAGGGCTGGAGGCCTCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCAAGAAGCGCCTACCTGAGCAAGGAGCTGGCCTCCCTGTTGAGGGCTGGAGGCGTCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GACCTGCTGGATGTCACCCGCCAAGCCGTGCAGGAGTTGGTCAGCCTGTGCTATGAGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GACCTGCTGGACCTCACTCGGCAGGCAGTGCAGGAGCTGGTCAGCTTGTACTATGAGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCTTGGCGACTGCTGATAACAGCTGCCCCAAACCTGACCACCAGCCCAGCCTTCCGCTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAGCGGCCGTCCCTACAGATGAGTACCGCTGTCTGGTACAACAGATCAGATGTGTTTGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGGCGGCCGTCCCTACAGATGAATACCAGCATCTGGTACAACCGATCTGATGTGTTTGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGAAGTGTCTACAACTGCTCTGGGGAGGCGTGCAGTGGGCACAATCGAAGCCCGTTGGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       cegaerereracaacrecreceeeeaeeccrecaeeeeccacaarceraecccecreerc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCCATCCGCCGATACGGGGTCTCCCAGCCTGATGCCGTGGCAGCTTGGAAGCTCCTACTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              eccecceecerareeerrcrccacceeacecaeeecaecereeaeecracrecrc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCTGAGCTGGGCTGGCGCAAGGACCCTGTACCAGATTTGATGGCCTGGGTGAGCAGCTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCTGAGCTGGGCTGGCGAAAGGACCCAGTGCCAGATTTGGCCAGCCTGGGTGACCAGCTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTCGGCACTGGCATAGCCCCCGAGGGCATTGGCCAGAATGAAGTGGTCTATGCTCTCATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTAGGCACGGCATGGCCCCCGAGGGCATCAGCCAGAACGAAGTGGTCTATTCCCTCATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCCCTCGAGGATGTGAACCGAGGCCCCCAGGCAGCTCGCCTCTTCCCTAACTCCACCATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCCCTAGAGGCTGTGAACGGAGGCCCAGAAGCTGCCCGCCTCTTCCCCCAACTCCACCATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGCCAGCCCTTCATCTGGTGCATGCTGCACACCTTTGGGGGGAAACCATGGTCTTTTTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTGGTTCTGGACCTGTTTGCTGAAAGCCATCCTGTTTACATGCACACAGCCTCCTTCCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CTGGTTCTGGACCTGTTTGCTGAGAGCCAGCCTGTGTATACCCGCACTGCCTCCTTCCAG
2359
                                                                     2315
                                                                                                                                          2255
                                                                                                                                                                              7383
                                                                                                                                                                                                               2195
                                                                                                                                                                                                                                                   7323
                                                                                                                                                                                                                                                                                                                                                                                                                                     2015
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1775
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1295
                                    7497
                                                                                                         7443
                                                                                                                                                                                                                                                                                     2135
                                                                                                                                                                                                                                                                                                                            7263
                                                                                                                                                                                                                                                                                                                                                              2075
                                                                                                                                                                                                                                                                                                                                                                                                 7203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        7143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               7083
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1895
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    7023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6963
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6903
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      6843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             6783
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1355
```

Db 7498 CAGCCTGACTCTTTGTGACAGATTAGCCATCGCAGGGACCTGCT 7541
Search completed: February 13, 2004, 12:03:30
Job time: 9404 secs

```
Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OM nucleic -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Database
                                                                                                                                                                                                                                                                                                                                                                                                                                         Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
1426.6
369.4
369.4
305.2
305.2
304.2
                                                                                                                                                                                                                                                                                         Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          N Geneseq 19Jun03;*

1: /SIDS1/gcgdata/geneseq/geneseqn-emb1/NA1980.DAT:*

2: /SIDS1/gcgdata/geneseq/geneseqn-emb1/NA1981.DAT:*

3: /SIDS1/gcgdata/geneseq/geneseqn-emb1/NA1982.DAT:*

4: /SIDS1/gcgdata/geneseq/geneseqn-emb1/NA1983.DAT:*

5: /SIDS1/gcgdata/geneseq/geneseqn-emb1/NA1984.DAT:*

6: /SIDS1/gcgdata/geneseq/geneseqn-emb1/NA1985.DAT:*

7: /SIDS1/gcgdata/geneseq/geneseqn-emb1/NA1985.DAT:*

8: /SIDS1/gcgdata/geneseq/geneseqn-emb1/NA1988.DAT:*

9: /SIDS1/gcgdata/geneseq/geneseqn-emb1/NA1988.DAT:*

9: /SIDS1/gcgdata/geneseq/geneseqn-emb1/NA1988.DAT:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              nucleic search, using sw
                                                                                                                                                                                                                                                                                      Query
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                          100.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  February 13, 2004, 07:06:01; Search time 672 Seconds (without alignments)
10343.829 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-09-836-613-1
2575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2552756 seqs, 1349719017 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | SIDS1/gogdata/geneseq/geneseqn-emb1/NA1992.DAT:*
| SIDS1/gogdata/geneseq/geneseqn-emb1/NA1993.DAT:*
| SIDS1/gogdata/geneseq/geneseqn-emb1/NA1993.DAT:*
| SIDS1/gogdata/geneseq/geneseqn-emb1/NA1994.DAT:*
| SIDS1/gogdata/geneseq/geneseqn-emb1/NA1995.DAT:*
| SIDS1/gogdata/geneseq/geneseqn-emb1/NA1995.DAT:*
| SIDS1/gogdata/geneseq/geneseqn-emb1/NA1999.DAT:*
| SIDS1/gogdata/geneseq/geneseqn-emb1/NA1999.DAT:*
| SIDS1/gogdata/geneseq/geneseqn-emb1/NA2000.DAT:*
| SIDS1/gogdata/geneseq/geneseqn-emb1/NA2001A.DAT:*
| SIDS1/gogdata/geneseq/geneseqn-emb1/NA2001B.DAT:*
| SIDS1/gogdata/geneseq/geneseqn-emb1/NA2001B.DAT:*
| SIDS1/gogdata/geneseq/geneseqn-emb1/NA2001B.DAT:*
| SIDS1/gogdata/geneseq/geneseqn-emb1/NA2001B.DAT:*
| SIDS1/gogdata/geneseq/geneseqn-emb1/NA2001B.DAT:*
| SIDS1/gogdata/geneseq/geneseqn-emb1/NA2001B.DAT:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCCGGGCTTAGCCTTCGGGT.....AGTCGAGCGGCCGCGAATTC 2575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GenCore version 5.1.6 Copyright (c) 1993 - 2004 Compugen Ltd.
                                                                                                                                                                                                                                                                                      Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /SIDS1/gcgdata/geneseq/geneseqn-emb1/NA1990.DAT:*
/SIDS1/gcgdata/geneseq/geneseqn-emb1/NA1991.DAT:*
      2575
10380
2661
4740
706
706
710
710
                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                         IJ
   AAT67163
AAT67164
ABL22605
ABL22604
ABQ32798
ABQ32799
ABQ32799
ABQ14172
ABQ14173
                                                                                                                                                                                                                                                                                                                                                                                       SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     model
Human alpha-N-acet
Human alpha-N-acet
Drosophila melanog
Drosophila melanog
Oligonuclectide fo
Oligonuclectide fo
Oligonuclectide fo
                                                                                                                                                                                                                                                                                         Description
      ARRESULT 1
ARRESULT 1
ARTEFIE ART 1
ART 20-P
ART
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         იი
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      00000000
                                                                                                                                                                                                                                                                                                                    mat_peptide
                                        23-NOV-1995;
                                                                                                                                                                 29-MAY-1997.
                                                                                                                                                                                                                             WO9719177-A1
                                                                                                                                                                                                                                                                                                                                                                             sig_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20-AUG-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAT67163;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAT67163 standard; cDNA; 2575 BP
                                                                                                    22-NOV-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (first entry)
```

Mycobacterium tube	966	22	037	2.4	61	45
DNA encoding novel	AAS69156	23	535	2.4		44
н		22		2.4	61	43
Human skeletal mus	AAH57405	22	535	2.4		42
comyces ros	AAV25925	19	24379	2.4	61.2	41
		18	24379	2.4		40
Rice gibberellin 2	AAH48175	22	1562	2.4		39
	AAI99682	22	4411529	2.4		38
Ξ.	AAA09686	22	3957	2.4	N	37
Rianodin receptor	AAQ10613	12	567	٠	ю.	36
٠,		2 4	43058		Ψ	ψ
Lung cancer relate	ABL64982	24	305		Ψ	₩ 4
Gene #3953 used to	ABN97455	24	43058	•	'n	ω ω
w	ABS78655	24	5811	•	Ψ	32
uman	AAD25519	24	474	•	4.	
Human herpesvirus	AAD25519	24	154746	•	4.	
low density	AAH26495	22	242		64.4	
Mouse SCA2 polypep	ABV75290	25	4225	2.5	64.4	
HSV-2 immediate ea	AAA09686	22	3957		4.	
Human low density	AAH26499	22	1614		4.	
IL-1ra BAC	AAX02974	20	3198	2.6	9	25
er rel	ABL68935	24	5181	٠	8	
gene expres	ABZ35021	24	2271		œ	23
Rabbit low density	AAH26500	22	2561		œ.	22
aden	AAX53491	20	114955	2.7	70	21
2168 used	ABN95670	24	014	2.7	70	
prostate	ABV28823	23	17	2.7	0	
Human prostate exp	ABV22988	23	5175	2.7	70.4	18
#3357 used t	ABN96859	24	7			17
man Immu	AAT89783	18	17	٠	70.4	
trus genon	AAT91361	18	40	2 8	7	15
osine A	AAX53491	20	95			
elan	258	23	22	ω	89.	13
otide f	44	24	710	0	57.	12
otide	417	24	\vdash		57.	11
leot	ABQ32801	24	706	10.1	259.8	10
ligonucleotide f	2	24	706	10.1	59.	Q

ALIGNMENTS

```
Alpha-N-acetylglucosaminidase; mucopolysaccharidosis type IIIB; gene therapy; enzyme replacement therapy; diagnosis; ss.
                                                                                                                                                                                                                                                                                                                                                                                          Human alpha-N-acetylglucosaminidase cDNA
95AU-0006748
                                   96WO-AU00747.
                                                                                                                                                                                                   /*tag= a
102..170
                                                                                                                                               /*tag=
                                                                                                                                                                 /*tag= b
171..2330
                                                                                                                                                                                                                                       Location/Qualifiers
102..2333
```

Result No.

Ω

```
Query Match
Best Local Sim
Matches 2575;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A cDNA clone (AAT67163) codes for human alpha-N-acetylglucosaminidase (AAW18017), an enzyme that can hydrolyse the terminal alpha-N-acetylglucosamine residues at the non-reducing terminus of fragments of heparan sulphate and heparin. It was isolated from a human peripheral blood leukocyte cDNA library using probes based on isolated peptide fragments (see also AAW18018-20) of the enzyme and by examination of the corresponding genomic gene (see also AAT67164). The isolated cDNA, and primers/probes based on the sequence or on or its complementary strand, can be used to investigate, diagnose and treat alpha-N-acetylglucosaminidase deficiency, such as and treat alpha-N-acetylglucosaminidase deficiency, such as patients suffering from mucopolysaccharidosis type IIIB.

Administration is by oral, i.v., i.p., enzyme replacement therapy,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Claim 7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Nucleic acid encoding mammalian alpha-N-acetylglucosaminidase used for the diagnosis and treatment of mucopolysaccharidosis IIIB, also used in gene therapy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Anson
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (WOME-)
                  541
                                               541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               therapy or other routes.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1997-298114/27
                                                                                                                                                                                                                                                                            301
                                                                                                                                                                                                                                                                                                                                                                                                         181
                                                                                                                                                                                                                                                                                                                                                                                                                                      181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        121
                                                                                481
                                                                                                             481
                                                                                                                                               421
                                                                                                                                                                            421
                                                                                                                                                                                                             361
                                                                                                                                                                                                                                             361
                                                                                                                                                                                                                                                                                                         301
                                                                                                                                                                                                                                                                                                                                          241
                                                                                                                                                                                                                                                                                                                                                                         241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    _
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WOMEN'S & CHILDREN'S
                                                                                                                                                                                                                                                                                                                                                                                                                              ACTTCTCCGTGTCGGAGCGCGCTCTGGCCAAGCCGGGCTTGGACACCTACAGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCCCACCCCTGGCCGTCGCGGGACCCGCAGGACTGAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCCCACCCCTGGCCGTCGCGGGACCCGCAGGACTGAGACCATGGAGGCGGTGGCGGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCCGGGCTTAGCCTTCGGGTCCACGTGGCCGGAGGCCGGCAGCTGATTGGACGCGGGCCG
                                              egecccecregeaeceaearaeacregaregecreaaregearcaaccregeacreg
                                                                                                    ACAGGTACCGCTATTACCAGAATGTGTGCACGCAAAGCTACTCCTTCGTGTGGTGGAGACT
                                                                                                                                                                    AGCTGCGCCTGCCGCGGCCACTGCCAGCCGTGCCGGGGGAGCTGACCGAGGCCCACGCCCA
                                                                                                                                                                                                                                   CGGGGCTGCACCGCTACCTGCGCGACTTCTGTGGCTGCCACGTGGCCTGGTCCGGCTCTC
                                                                                                                                                                                                                                                                                                                                                                                                       GGGAGGCGGCGGCCGTGCGGGCCTCGTGGCCCGGCTGCTGGGGGCCAGGCCCCGCGGCCCG
                                                                                                                                                                                                           CGGGGCTGCACCGCTACCTGCGCGACTTCTGTGGCTGCCACGTGGCCTGGTCCGGCTCTC
                                                                                                                                                                                                                                                                          TGGGCGGCGGCGGCGCGCGCGTGCGGGTGCGCGGCTCCACGGGCGTGGCGGCCGCCG
                                                                                                                                                                                                                                                                                                         TGGGCGGCGGCGCGCGCGCGTGCGGGTGCGGCGCCCCACGGGCGTGGCGGCCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCCGGGCTTAGCCTTCGGGTCCACGTGGCCGGAGGCCGGCAGCTGATTGGACGCGGGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Page 46-50; 79pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               100.0%;
                                                                                                                                                                                                                                                                                                                                        CGGTGGAGCGCGCTCTGGCTGCCAAGCCGGGCTTGGACACCTACAGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; 819 C; 833 G; 483 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hopwood JJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 2575;
Pred. No. 0;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HOSPITAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Scott H,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ВB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Weber
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 o
;-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCATGGAGGCGGTGGCGGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         type
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                 600
                                               600
                                                                                                             540
                                                                                                                                              480
                                                                                                                                                                                                           420
                                                                                                                                                                                                                                          420
                                                                                                                                                                                                                                                                                                        360
                                                                                                                                                                                                                                                                                                                                                                                                       240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    60
                                                                              540
                                                                                                                                                                            480
                                                                                                                                                                                                                                                                          360
                                                                                                                                                                                                                                                                                                                                        300
                                                                                                                                                                                                                                                                                                                                                                       300
                                                                                                                                                                                                                                                                                                                                                                                                                                      240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                              밁
                                                        S
                                                                                            밁
                                                                                                                         Ś
                                                                                                                                                           밁
                                                                                                                                                                                     S
                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
Ś
                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                   5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ő
 1681
                                                                                              1561
                                                                                                                                                                                                                                                                                        1381
                                                                                                                                                                                                                                                                                                                       1381
                                                                                                                                                           1501
                                                                                                                                                                                                                           1441
                                                                                                                                                                                                                                                        1441
                                                                                                                                                                                                                                                                                                                                                       1321
                                                                                                                                                                                                                                                                                                                                                                                                                       1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1081
                                                                                                                            1561
                                                                                                                                                                                          1501
                                                                                                                                                                                                                                                                                                                                                                                      1321
                                                                                                                                                                                                                                                                                                                                                                                                                                                      1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      601
                                                                                                                                                                                                                                                 GCATCAGCCAGAACGAAGTGGTCTATTCCCCTCATGGCTGAGCTGGGCTGGCGAAAGGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCAGCATCTGGTACAACCGATCTGATGTGTTTGAGGCCTGGCGGCTGCTGCTCACATCTG
                                                                                                                                                                                                                                                                                                             CAGAAGCTGCCCGCCTCTTCCCCAACTCCATGGTAGGCACGGGCATGGCCCCCGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCCAGCCTGTGTATACCCGCACTGCCTCCTTCCAGGGCCAGCCCTTCATCTGGTGCATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGGCTGTGCTGGAGCTGTGCCCCGTGGCCGCCTCCTGGTTCTGGACCTGTTTTGCTGAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TATTCCCCATCATCGGGAGCCTCTTCCTGCGAGAGCTGATCAAAGAGTTTTGGCACAGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTTGGGGCCACTTTAACTGTTCCTACTCCTGCTTCCTTCTTGGCTCCGGAAGACCCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTTGGGGCCACTTTAACTGTTCCTACTCCTGCTTCCTTCTGGCTCCGGAAGACCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCTGGAGCGGCCAGGAGGCCATCTGGCAGCGGGTGTACCTGGCCTTGGGCCTGACCCAGG
                                                   AGGCCTGCAGGGGCCACAATCGTAGCCCGCTGGTCAGGCGGCCGTCCCCTACAGATGAATA
                                                                                               ACCCGGACGCAGGGGAGGCTGGAGGCTACTGCTCCGGAGTGTGTACAACTGCTCCGGGG
                                                                                                                ACCCGGACGCAGGGGCAGCGTGGAGGCTACTGCTCCGGAGTGTGTACAACTGCTCCGGGG
                                                                                                                                                                                          CAGTGCCAGATTTGGCAGCCTGGGTGACCAGCTTTGCCGCCGGCGGTATGGGGTCTCCC
                                                                                                                                                                                                                                                                                        CAGAAGCTGCCCGCCTCTTCCCCAACTCCACCATGGTAGGCACGGGCATGGCCCCCGAGG
                                                                                                                                                                                                                                                                                                                                                       TGCACAACTTTGGGGGAAACCATGGTCTTTTTGGAGCCCTAGAGGCTGTGAACGGAGGCC
                                                                                                                                                                                                                                                                                                                                                                               TGCACAACTTTGGGGGGAAACCATGGTCTTTTTGGAGCCCTAGAGGCTGTGAACGGAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                       GCCAGCCTGTGTATACCCGCACTGCCTCCTTCCAGGGCCAGCCCTTCATCTGGTGCATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGGCTGTGCTGGGAGCTGTGCCCCGTGGCCGCCTCCTGGTTCTGGACCTGTTTGCTGAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTGCCGCAGCCACCACTGCCGTCTATGAGGCCATGACTGCAGTGGATACTGAGGCTGTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TTGCCGCAGCCACCACTGCCGTCTATGAGGCCATGACTGCAGTGGATACTGAGGCTGTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACATCTATGGGGCCGACACTTTCAATGAGATGCAGCCACCTTCCTCAGAGCCCTCCTACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACATCTATGGGGCCGACACTTTCAATGAGATGCAGCCACCTTCCTCAGAGCCCTCCTACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGCATGTTCCCGAGGCTGTCACCAGGGTGTTCCCTCAGGTCAATGTCACGAAGATGGGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGCATGTTCCCGAGGCTGTCACCAGGGTGTTCCCCTCAGGTCAATGTCACGAAGATGGGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TGCACACCTGGGATGGCCCCCCTGCCCTGCCACATCAAGCAGCTTTACCTGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CAGAGATCAATGAGTTCTTTACTGGTCCTGCCTTCCTGGCCTGGGGGCGAATGGGCAACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCTGGAGCGGCCAGGAGCCCATCTGGCAGCGGGTGTACCTGGCCTTGGGCCTGACCCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGCACACCTGGGATGGCCCCTGCCCCCCCTCCTGGCACATCAAGCAGCTTTACCTGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                      1320
 1740
                                                               1680
                                                                                                                                                                                                                                                           1500
                                                                                                                                                                                                                                                                                                                     1440
                                                                                               1620
                                                                                                                              1620
                                                                                                                                                                                            1560
                                                                                                                                                                                                                           1500
                                                                                                                                                                                                                                                                                        1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1260
                                1680
                                                                                                                                                             1560
                                                                                                                                                                                                                                                                                                                                                         .1380
                                                                                                                                                                                                                                                                                                                                                                                                                       1320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      720
```

Š 밁 Ş В Ś g Ś 밁 Ś 밁 S 밁 8 뮍 S 뮹 Ś 밁 Ş

```
RESULT 2
AAT67164
ID AAT6
XX AAT6
AC AAT6
XX DT 20-A
XX Huma
XX Alph
KW gene
XX
                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                       B
                                                                                                                                                                                                                                                                                                         5
                                                                                                                                                                                                                                                                                                                                           뮰
                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                     5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         멍
           Alpha-N-acetylglucosaminidase; mucopolysaccharidosis type gene therapy; enzyme replacement therapy; diagnosis; ss.
                                                        Human alpha-N-acetylglucosaminidase gene
                                                                                         20-AUG-1997
                                                                                                                      AAT67164;
                                                                                                                                                  AAT67164 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2041
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2041
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1861
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1861
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1681
                                                                                                                                                                                                                                                 AGTACTGTTTTCCTACTTAAAAAAAAAAAAAAAAAAGTCGAGCGGCCGCGAATTC
                                                                                                                                                                                                                                                                                                          ACCTGGGGGGATTGGAAGTGTCCTGCCCTCCACCACCACCAAAGTGTGGGATTAA
                                                                                                                                                                                                                                                                                                                                                                      CAGACATCACAGGATAACCCAGGCCTGGGAGGAGGCCCCACGGCCTGCTGGTGGGGTCTG
                                                                                                                                                                                                                                                                                    ACCTGGGGGATTGGAGGGAAATGACCTGCCCTCCACCACCACCCAAAGTGTGGGATTAA
                                                                                                                                                                                                                                                                                                                                                                                                           GCCACCACTGGGCCTTGTTTCCGCTAATTCCAGGGCAGATTCCAGGGCCCAGAGCTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                      GCCACCACTGGGCCTTGTTTTCCGCTAATTCCAGGGCAGATTCCAGGGCCCAGAGCTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCAAGAAGATCTTCCTCAAATATTACCCCCGCTGGGTGGCCGGCTCTTGGTGATAGATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCAAGAAGATCTTCCTCAAATATTACCCCGGCTGGGTGGCCGGCTCTTGGTGATAGATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCTTCGTTCTCAGCAAGCAGAGGTACCCCAGCCAGCCGCGAGAGACACTGTGGACCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCCAGGGCATCCCTTTCCAACAGCACCAGTTTGACAAAAATGTCTTCCAACTGGAGCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACGAGGTGCTGGCTAGTGACAGCCGCTTCTTGCTGGCGAGCTGGCTAGAGCAGGCCCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTCCCTCCCTGGCCACCAGCCCCGCCTTCCGCTACGACCTGGACCTCACTCGGCAGG
                                                                                                                                                                                                                                                                                                                                                 CAGACATCACAGGATAACCCAGGCCTGGGAGGAGGCCCCACGGCCTGCTGGTGGGGTCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGGCCAACTACTACACCCCTCGCTGGCGGCTTTTCCTGGAGGCGCTGGTTGACAGTGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCTTGTGGGGGCCAGAAGGCAACATCCTGGACTATGCCAACAAGCAGCTGGCGGGGTTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CAGCGGCAGTCAGTGAGGCCGAGGCCGATTTCTACGAGCAGAACAGCCGCTACCAGCTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGCTGGCCTCCCTGTTGAGGGCTGGAGGCGTCCTGGCCTATGAGCTGCTGCTGCCGGCACTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCCAGGGCATCCCTTTCCAACAGCACCAGTTTGACAAAAATGTCTTCCAACTGGAGCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGGCCAACTACAACCCCTCGCTGGCGGCTTTTCCTGGAGGCGCTGGTTGACAGTGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCTTGTGGGGGGCCAGAAGGCAACATCCTGGACTATGCCAACAAGCAGCTGGCGGGGTTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CAGCGGCAGTCAGTGAGGCCGAGGCCGATTTCTACGAGCAGAACAGCCGCTACCAGCTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CAGTGCAGGAGCTGGTCAGCTTGTACTATGAGGAGGCAAGAAGCGCCTACCTGAGCAAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CAGTGCAGGAGCTGGTCAGCTTGTACTATGAGGAGGCAAGAAGCGCCTACCTGAGCAAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          crecereceresecaceaecereceraceaecrecreseaecereaecereaecaes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCAGCATCTGGTACAACCGATCTGATGTGTTTGAGGCCTGGGGGGCTGCTGCTCACATCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACGAGGTGCTGGCTAGTGACAGCCGCTTCTTGCTGGGCAGCTGGCTAGAGCAGGCCCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGCTGGCCTCCCTGTTGAGGGCTGGAGGCGTCCTGGCCTATGAGCTGCTGCCGGCACTGG
                                                                                      (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TCTCAGCAAGCAGAGGTACCCCAGCCAGCCGCGAGGAGACACTGTGGACCTGG
                                                                                                                                                  CDNA;
                                                                                      entry)
                                                                                                                                                  10380
                                                                                                                                                  股
                                                                                                                                                                                                                        2575
                                                                                                                                                                                                                                                     2575
                                                                                                                                                                                                                                                                                                                  2520
                                                                                                                                                                                                                                                                                                                                                                                                           2400
                                                                                                                                                                                                                                                                                    2520
                                                                                                                                                                                                                                                                                                                                              2460
                                                                                                                                                                                                                                                                                                                                                                            2460
                                                                                                                                                                                                                                                                                                                                                                                                                                      2400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1980
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1980
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1800
```

```
A genomic DNA molecule (AAT67164) includes 6 exons that code for human alpha-N-acetylglucosaminidase (AAW18017), an enzyme that can hydrolyse the terminal alpha-N-acetylglucosamine residues at the non-reducing terminus of fragments of heparan sulphate and heparin. It was isolated by hybridisation of a human chromosome 17 library. A cDNA clone (AAT67163) coding for the enzyme has also been isolated. The isolated gene or cDNA, and primers/probes based on them or their complementary strands, can be used to investigate, diagnose and treat alpha-N-acetylglucosaminidase deficiency, for example in patients suffering from mucopolysacharidosis type IIIB. Administration is by oral, i.v., i.p., enzyme replacement therapy, gene therapy or other routes.
                                                                                                                                                         Nucleic acid encoding mammalian alpha-N-acetylglucosaminidase used for the diagnosis and treatment of mucopolysaccharidosis IIIB, also used in gene therapy
                                                                                                                                                                                                                                                                                                                                                                                                                                    exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    exon
                                                                                                                                         Claim 8; Page 54-61; 79pp; English
                                                                                                                                                                                                   P-PSDB;
                                                                                                                                                                                                                                Anson
                                                                                                                                                                                                                                                                      23-NOV-1995;
                                                                                                                                                                                                                                                                                       22-NOV-1996;
                                                                                                                                                                                                                                                                                                                                                            3'UTR
                                                                                                                                                                                                                                                                                                                                                                                      exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Key
5'UTR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo
                                                                                                                                                                                                              WPI:
                                                                                                                                                                                                                                                                                                                             WO9719177-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                        intron
                                                                                                                                                                                                                                                  (WOME-)
                                                                                                                                                                                                                                                                                                                                                                                                         intron
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       intron
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   intron
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      intron
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     intron
                                                                                                                                                                                                   1997-298114/27.
DB; AAW18017.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sapiens
                                                                                                                                                                                                                                DS,
                                                                                                                                                                                                                                                  WOMEN'S & CHILDREN'S HOSPITAL.
                                                                                                                                                                                                                               Blanch
                                                                                                                                                                                                                                                                      95AU-0006748
                                                                                                                                                                                                                                                                                        96WO-AU00747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /number= 2
2263..3055
'*tag=
                                                                                                                                                                                                                                                                                                                                                                                                       /*tag= j
/number= 5
5924..7744
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3203..3386
/*tag= g
3387..3472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /*tag= a
990..1372
/*tag= b
/number= 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                       /number= 4
3473..5666
                                                                                                                                                                                                                                                                                                                                                                   /*tag= 1
/number= 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
/*tag= h
'umber=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /*tag= e
3056..3202
/*tag= f
                                                                                                                                                                                                                                                                                                                                                                                   /*tag= k
7745..8955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /*tag= c
2115..2262
                                                                                                                                                                                                                                                                                                                                                                                                                                   5667..5923
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               number=
                                                                                                                                                                                                                                                                                                                                                                                                                                              *tag=
                                                                                                                                                                                                                              ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  73..2114
                                                                                                                                                                                                                              Hopwood
                                                                                                                                                                                                                               'n,
                                                                                                                                                                                                                                Scott
                                                                                                                                                                                                                               Ή
                                                                                                                                                                                                                               b
                                                                                                                                                                      type
```

Query Match

Sequence

10380

BP; 2210 A; 2953 C;

2851

Ģ.

2366 T; BB 18;

0 other;

Length 10380;

55.4%;

Score 1426.6;

```
g
                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                 함
                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                         B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
             8
                                                         δ
                                                                                 밁
                                                                                                        Ş
                                                                                                                                      В
                                                                                                                                                         Ś
                                                                                                                                                                                     В
                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                             5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ď,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              멼
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best Local Similarity 99.7%; Matches 1429; Conservative
                                                                                                                                                                                                                                                                                                                                            8334
                                                                                                                                                                                                                                                                                                                                                                   1712
                                                                                                                                                                                                                                                                                                                                                                                            8274
                                                                                                                                                                                                                                                                                                                                                                                                                    1652
                                                                                                                                                                                                                                                                                                                                                                                                                                             8214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   7854
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1112
                                                                                                                                                                                                                                         8454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8094
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1292
              2132
                                                                                         8634
                                                                                                                                        8574
                                                                                                                                                                                         8514
                                                                                                                                                                                                                                                                                                                   1772
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7974
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1352
                                                                                                                2012
                                                                                                                                                                                                                                                                  1832
                                                                                                                                                                1952
                                                                                                                                                                                                                 1892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TTTCCTGGAGGCGCTGGTTGACAGTGTGGCCCAGGGCATCCCTTTCCAACAGCACCAGTT
                                                      CTATGCCAACAAGCAGCTGGCGGGGTTGGTGGCCAACTACTACACCCCTCGCTGGCGGCT
                                                                                                      CTACGAGCAGAACAGCCGCTACCAGCTGACCTTGTGGGGGCCAGAAGGCAACATCCTGGA
                                                                                                                                        CCTGGCCTATGAGCTGCCGGCACTGGACGAGGTGCTGGCTAGTGACAGCCGCTTCTT
                                                                                                                                                                                                                                         GGAGGCAAGAAGCGCCTACCTGAGCAAGGAGCTGGCCTCCCTGTTGAGGGCTGGAGGCGT
                                                                                                                                                                                                                                                          GGAGGCAAGAAGCGCCTACCTGAGCAAGGAGCTGGCCTCCCTGTTGAGGGCTGGAGGCGT
                                                                                                                                                                                                                                                                                         CTACGACCTGCTGGACCTCACTCGGCAGGCAGTGCAGGAGCTGGTCAGCTTGTACTATGA
                                                                                                                                                                                                                                                                                                                CTACGACCTGCTGGACCTCACTCGGCAGGCAGGCAGGAGCTGGTCAGCTTGTACTATGA
                                                                                                                                                                                                                                                                                                                                                                   TGAGGCCTGGCGGCTGCTCACATCTGCTCCCTCCCTGGCCACCAGCCCCGCCTTCCG
                                                                                                                                                                                                                                                                                                                                                                                            GGTCAGGCGGCCGTCCCTACAGATGAATACCAGCATCTGGTACAACCGATCTGATGTGTT
                                                                                                                                                                                                                                                                                                                                                                                                             GGTCAGGCGGCCGTCCCTACAGATGAATACCAGCATCTGGTACAACCGATCTGATGTGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                            GCTCCGGAGTGTACAACTGCTCCGGGGAGGCCTGCAGGGGGCCACAATCGTAGCCCGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCTCCGGAGTGTGTACAACTGCTCCGGGGAGGCCTGCAGGGGCCACAATCGTAGCCCGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTTTGCCGCCCGGCGGTATGGGGTCTCCCACCCGGACGCAGGGCAGCGTGGAGGCTACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CATGGCTGAGCTGGGCTGGCGAAAGGACCCAGTGCCAGATTTGGCAGCCTGGGTGACCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CATGGTAGGCACGGGCATGGCCCCCGAGGGGCATCAGCCAGAACGAAGTGGTCTATTCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGGAGCCCTAGAGGCTGTGAACGGAGGCCCAGAAGGCTGCCCGCCTCTTCCCCAACTCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCAGGGCCAGCCCTTCATCTGGTGCATGCTGCACAACTTTGGGGGAAACCATGGTCTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCAGGGCCAGCCCTTCATCTGGTGCATGCTGCACAACTTTGGGGGAAACCATGGTCTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCTCCTGGTTCTGGACCTGTTTTGCTGAGAGCCAGCCTGTGTATACCCCGCACTGCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCCGCAGTTCTGGGGGGCCCGGCCCAGATCAGGGCTGTGCTGGGAGCTGTGCCCCGTGGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCCGCAGTTCTGGGGGCCCCGCCCAGATCAGGGCTGTGCCTGGGAAGCTGTGCCCCGTGGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTACGAGCAGAACAGCCGCTACCAGCTGACCTTGTGGGGGGCCAGAAGGCAACATCCTGGA
                                                                                                                                                                CTTTGCCGCCCGGCGCTATGGGGTCTCCCACCCGGACGCAGGGGCAGCGTGGAGGCTACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TEGAGCCCTAGAGGCTGTGAACGGAGGCCCAGAAGCTGCCCGCCTCTTCCCCAACTCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pred. No. 4.2e-245; 0; Mismatches 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                   1831
                                                                                                                                                                                                                                                                                                                                                                   1771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1531
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  7793
                                                                                        8693
                                                                                                                2071
                                                                                                                                                              2011
                                                                                                                                                                                         8573
                                                                                                                                                                                                                 1951
                                                                                                                                                                                                                                         8513
                                                                                                                                                                                                                                                                  1891
                                                                                                                                                                                                                                                                                         8453
                                                                                                                                                                                                                                                                                                                                           8393
                                                                                                                                                                                                                                                                                                                                                                                            8333
                                                                                                                                                                                                                                                                                                                                                                                                                                             8273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8093
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   7853
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1171
              2191
                                      8753
                                                             2131
                                                                                                                                        8633
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7973
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7913
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
```

```
ίδ
                                       B
                                                        S
                                                                             밁
                                                                                                  Ş
                                                                                                                            맑
                                                                                                                                               Ś
                                                                                                                                                                      밁
                                                                                                                                                                                        Ś
                                                                                                                                                                                                                문
                                                                                                                                                                                                                                . 8
밁
                                                                                                                                                                                                                                                        맑
                   2492
                                                                                   8994
                                                                                                        2372
                                                                                                                                                                       8874
                                                                                                                                                                                                                                      2192
                                                                                                                                                                                                                                                           8754
                                                             GAGGCCCCACGGCCTGCTGGTGGGGGTCTGACCTGGGGGGGATTGGAGGGAAATGACCTGCC
                                                                                                                                          CTGGGTGGCCGGCTCTTGGTGATAGATTCGCCACCACTGGGCCTTGTTTTTCCGCTAATTC
                                                                                                                                                                                                                                  CAGGGCAGATTCCAGGGCCCAGAGCTGGACAGACATCACAGGATAACCCAGGCCTGGGAG
                                                                                                        CAGGGCAGATTCCAGGGCCCAGAGCTGGACAGACATCACAGGATAACCCCAGGCCTGGGAG
                                                                                                                             CTGGGTGGCCGGCTCTTGGTGATAGATTCGCCACCACTGGGCCTTGTTTTCCGCTAATTC
                                                                                                                                                                        CCAGCCGCGAGGAGACACTGTGGACCTGGCCAAGAAGATCTTCCTCAAATATTACCCCGG
                                                                                                                                                                                            TTTCCTGGAGGCGCTGGTTGACAGTGTGGCCCCAGGCATCCCTTTCCAACAGCACCAGTT
                                                                                                                                                                                                                 \CCTGGGGGATTGGAGGGAAATGACCTGCC
9166
                   2544
                                          9113
                                                             2491
                                                                                    9053
                                                                                                        2431
                                                                                                                               8993
                                                                                                                                                  2371
                                                                                                                                                                        8933
                                                                                                                                                                                            2311
                                                                                                                                                                                                                  8873
                                                                                                                                                                                                                                                           8813
                                                                                                                                                                                                                                      2251
```

ABL22605 standard; 2661 85

Drosophila melanogaster genomic polynucleotide SEQ 26-MAR-2002 ABL22605 (first entry) ID NO

WO200171042-A2 Drosophila melanogaster

Drosophila; developmental pharmaceutical; gene; ds.

biology;

cell

signalling;

insecticide;

23-MAR-2001; 2001WO-US09231

23-MAR-2000; 2000US-191637P 11-JUL-2000; 2000US-0614150

PΕ CORP NY

Venter ď, Adams M, 匚 , dwa Myers 띺,

2001-656860/75

interactions New isolated nucleic a genes from Drosophila acid a and detection reagent for for elucidating cell s c detecting signalling 1000 and c cell-cell

Claim 1; SEQ ID NO 19288; 21pp + Sequence Listing; English.

RESULT 3
ABL22605
ID 26-M
XX ABL2
XX ABL2
XX Drog
XX Cla
XX Upi
XX Upi
XX Cla
XX Cla The invention relates to an isolated nucleic acid detection reagent capable of detecting 1000 or more genes from Drosophila. The invention is useful in developmental biology and in elucidating cell signalling and cell-cell interactions in higher eukaryotes for the development of insecticides, therapeutics and pharmaceutical drugs. The invention discloses genomic DNA sequences (ABL01860-ABL30511), expressed DNA sequences (ABL01870737-ABB72072). The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO

```
문
                                                                                                                                                             Ś
                                                                                                                                                                                                                                                  뮍
                                                                                                                                                                                                                                                                                                          5
                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          & 유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       $
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3 X 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity
Matches 901; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 2661 BP; 657 A; 653 C; 698 G; 653 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ftp.wipo.int/pub/published_pct_sequences.
        1451
                                                                                                                                                                                                                                                  1608
                                                                                                                                                                                                                                                                                                                               1331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1371
                                                                                                                                                                                                                                                                                                                                                                                                            1548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1071
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1011
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             971
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    851
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            951
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          891
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                671
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GTATACCCGCACTGCCTCCCAGGGCCCAGCCCTTCATCTGGTGCATGCTGCACAACTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CATCGGGAGCCTCTTCCTGCGAGAGCTGATCAAAGAGTTTGGCACAGACCACATCTATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTTCCCCGATCGATACTGCTGCGGTTTATTTGTGGAACCCACGGAGAATCTTTTCAAGGA
GAACGAAGTGGTCTATTCCCTCATGGCTGAGCTGGGCTGGCGAAAGGACCCAGTGCCAGA 1510
                                                                                GCGTCGCTTGCCCAACAGCAGTTTGGTGGGCACGGGAATCACACCCGAGGGCATTGGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CACGGCCGCACCACGTGGCATTTTGGTGCTCGATCTGCAGAGCGAACAGTTTCCGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGGCTGGATGTTCGTGAAGAATCC---CTTTTGGACCACGGACATGGCTGAAGCTTTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGCGGCGGCGATTTATGAATCTATGCGCGGCATTGATCCTCAGGCCATTTGGTTGCTTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CACCACTGCCGTCTATGAGGCCATGACTGCAGTGGATACTGAGGCTGTGTGGGCTGCTCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGCCGACACTTTCAATGAGATGCAGCCACCTTCCTCAGAGCCCTCCTACCTTGCCGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GÁTAGCCTCGCGTTTTTTGCATAÁTAÍCÁTTÁCGAÁATATGGTTCGAÁTCÁCÁTCTTCTT
                                                                                                                                                         CCGCCTCTTCCCCAACTCCACCATGGTAGGCACGGGCATGGCCCCCGAGGGCATCAGCCA 1450
                                                                                                                                                                                                                                              CGGCGGCACACTTGGAATGTTTGGATCAGCGAAGCTGATAAATTCCGGAATAGAAGAGGC
                                                                                                                                                                                                                                                                                                                       тереведарансский ститтитеванесственевствиванев в принце в 
                                                                                                                                                                                                                                                                                                                                                                                                        ATACGAGCTAACGCGCTCCTACTTTGGGCAGCCCTTTATATGGTGCATGCTTCACAATTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GEGRACITET GEOCOCCACION TO CONTROL TO CONTROL DE CONTRO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGGCTGGCTCTTCCAGCACCAGCCGCCAGTTCTGGGGGCCCCGCCCAGATCAGGCCTGTGCT 1210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTGCGATCCCTTCAACGAACTGGAGCCACCGGTAGCCAAGCCGGAATACATGCGTTCAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTTTAACTGTTCCTACTCCTGCTCCTTCCTTCTGGCTCCGGAAGACCCCCATATTCCCCCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACGTGCTCTGAAGCGTCTGAATCCCGAATCGACGTTCATGGAAGTGCAGCGATGGAACCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGAGGCTGTCACCAGGGTGTTCCCTCAGGTCAATGTCACGAAGATGGGCAGTTGGGGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GECGGGACCACTGACACCGGCATGGCGACGCTATCAATTACTCCTCCAGCAGGAGATTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGATGGCCCCTGCCCCCCCCGGCACATCAAGCAGCTTTTACCTGCAGCACCCGGGTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCAGGAGGCCATCTGGCAGCGGGTGTACCTGGCCTTGGGCCTGACCCAGGCAGAGATCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCGCCGTCACCTGGACTGGATGGCCCTGATGGGCATCAGTCTGACTATTGC---GCCGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               egagcgagagaragactggartggcgctgaarggcatcaacctggcactggcctggagcgg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CACTGCCCAACGCAATCTGGGCATGAGCGTGGCCTTTGCCGGCTTTTGCTGGTCATGTGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGAGCATCTGGCTGGACCAGCTTTTCAGGCCTGGCAGCGCATGGGCAACATACGGGGATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                reaerrerraereerecrecerecereeeeeeeeeeaareeeeeeeaacereeaeaeee
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCAGGAAGCCATTTGGGTGAAGGTGTACACGGATATGGGCCTCAGGATGGAGGAAATCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTATCACCAGAACGTGTGCACTTGGAGCTATAGCTTTGCATGGTGGGGCATTGAGCAGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  14.3%;
ilarity 54.0%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 369.4; DB 23; Length Pred. No. 8.2e-57; O; Mismatches 741; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2661;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  27;
                                                                                1727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             . 1150
                                                                                                                                                                                                                                              1667
                                                                                                                                                                                                                                                                                                                                                                                                            1607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            910
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1070
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  970
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     850
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       790
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 950
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              670
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           890
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        833
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         550
```

```
뮸
                           8
                                                             밁
                                                                                    S
                                                                                                                        밁
                                                                                                                                             δ
                                                                                                                                                                                  밁
                                                                                                                                                                                                            8
                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                         맑
                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
 2379
                                                            2319
                                                                                                                                                                                                                   1919
                                                                                                                                                                                                                                                                                                                                         1799
                                                                                                                                                                                                                                                                                                                                                                        2022
                                                                                                                                                                                                                                                                                                                                                                                                                                                                1691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1905
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1845
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1571
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1728
                     GGTGGCCAACTACACCCCCTCGCTGGCGGCGTTTTCCTGGAGGCGCTG 2147
                                                                                         GACCTTGTGGGGGCCAGAAGGCAACATCCTGGACTATGCCAACAAGCAGCTGGCGGGGTT
ĠĠŦĠĄĠĊĠĄĊŦĄĊŦĄŦĄĠĠĊĊŦĊĠĠŦĠĠĄĠĄĊŦĊŦŦĊĊŦĠĠĄĄĠĄŦĠŦĠ
                                                                                                                                                AGCAGCGGCAGTCAGTGAGGCCGAGGCCGATTTCTACGAGCAGAACAGCCGCTACCAGCT
                                                            TACCGCCTGGGGTCCTGATGGTCAGATCCTGGACTATGCGTGCAAACAGTGGTCCGGCTT
                                                                                                                        GCAAGCGGCACCGAACACTGGGCAACAAAGAAACTTCGAATTCAATGCGAGAAACCAAAT
                                                                                                                                                                                  GGAGCTGATCCTGGCGAGCAGCAGGAATTTTCTGCTCGGCAACTGGCTGCAGCAGGCCAA
                                                                                                                                                                                                              GGACGAGGTGCTGGCTAGTGACAGCCGCTTCTTGCTGGGCAGCTGGCTAGAGCAGGCCGG 1978
                                                                                                                                                                                                                                             GCGACAGGTTTCGCGTTTCGAATTCCTTAGCGTCAAGCTGTTGAAACTGTTCGATGACAT
                                                                                                                                                                                                                                                                            egagoregocrocorgrigaegocrogaegocrocorgecorargaegocrocococacor
                                                                                                                                                                                                                                                                                                                                        GGCAGTGCAGGAGCTGGTCAGCTTGTACTATGAGGAGGCAAGAAGCGCCTACCTGAGCAA
                                                                                                                                                                                                                                                                                                                                                                       ACCECTAGAGGATAACAGATACGAGATATACGAACACGATTTGGTGGACATAACCAGGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAACTATGTGATGTATTCGTTCACCTTGGAGCGCGGGTGGAGTA---ATACATCCCTAGA
                                                                                                                                                                                                                                                                                                           ATTCCTGCAGATCAGCGCAGATCAGTTGTATATCAATCTAAGGTCGGCCTA---TAGAAA
                                                                                                                                                                                                                                                                                                                                                                                                 GGC-----CACCAGCCCGCCTTCCGCTACGACCTGCACCTCACTCGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                GTACAATGCAAGTGCAGTGCTGGATGCCTGGCACTTGTTGCTGACCTTCAGAGCCATCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCGGGGACÁGTATGTAGTGACGCGCA--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GEGCCACAATCGTAGCCCGCTGGTCAGGCGGCCGTCCCTACAGATGAATACCAGCATCTG 1690
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCTGGATAGCTGGTTTACGAATTTCTCACACAGCCGGTATGGCGTTAAGGATGAGCGTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TTTGGCAGCCTGGGTGACCAGCTTTGCCGCCCGGCGGTATGGGGTCTCCCACCCGGACGC 1570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGCCTTCCTTCAACCAAGAACCCTTCACTTG
 2427
                                                                                                                                                                                    2258
                                                                                                                                                                                                                                                                                                                                      1858
                                                                                                                                                                                                                                                                                                                                                                                                  1798
                                                                                                                                                                                                                                                                                                                                                                                                                                                              1750
                                                                                         2098
                                                                                                                        2318
                                                                                                                                                                                                                                                                             1918
                                                                                                                                                                                                                                                                                                                                                                       2081
                                                             2378
                                                                                                                                                                                                                                              2198
                                                                                                                                                                                                                                                                                                           2138
                                                                                                                                                                                                                                                                                                                                                                                                                                 2021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1844
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1784
```

```
RESULT 4
ABL22604/c
ID ABL226
XX ABL226
XX ABL226
XX Drosop
XX ABL226
                                                                                                                            pharmaceutical;
                                                                                                                                     Drosophila; developmental biology;
                                                                                                                                                        Drosophila melanogaster genomic polynucleotide SEQ ID NO 19285.
                                                                                                                                                                              26-MAR-2002
                                                                                                                                                                                                 ABL22604;
                                                                                                                                                                                                                    ABL22604 standard; DNA; 4740
                                                                                                                                                                             (first entry)
                                                                                                                            gene; ds.
                                                                                                                                                                                                                   ВP
```

23-MAR-2000; 2000US-191637P 11-JUL-2000; 2000US-0614150 23-MAR-2001; 2001WO-US09231 27-SEP-2001 (PEKE) PE CORP

WO200171042-A2

Drosophila melanogaster

cell signalling;

Claim

1450 1995 1390 2055 1330 2115 1270 2175 1210

```
The invention relates to an isolated nucleic acid detection reagent capable of detecting 1000 or more genes from Drosophila. The invention useful in developmental biology and in elucidating cell signalling and cell-cell interactions in higher eukaryotes for the development of insecticides, therapeutics and pharmaceutical drugs. The invention discloses genomic DNA sequences (ABLIG176-ABL30511), expressed DNA sequences (ABLIG175) and the encoded proteins
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 4740 BP; 1418 A; 1016 C; 977 G; 1329 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (ABB57737-ABB72072)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ftp.wipo.int/pub/published_pct_sequences.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  isolated nucleic a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2001-656860/75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JC,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                GGCGGCGGCGATTTATGAATCTATGCGCGGCATTGATCCTCAGGCCATTTGGTTGCTTCA
                                                                                                                                                                                                  GGCCGACACTTTCAATGAGATGCAGCCACCTTCCTCAGAGCCCTCCTACCTTGCCGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGAGGCTGTCACCAGGGTGTTCCCCTCAGGGTCAATGTCACGAAGATGGGCAGTTGGGGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TGAGTTCTTTACTGGCTGCCTTCCTGGCCTGGGGGGCGAATGGGCAACCTGCACACCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCAGGAAGCCATTTGGGTGAAGGTGTÁCACGGATATGGGCCTCÁGGATGGAGGAAÁTCGA
                                                                                            CACCACTGCCGTCTATGAGGCCATGACTGCAGTGGATACTGAGGCTGTGTGGCTGCTCCA 1150
                                                                                                                                                          CTGCGATCCCTTCAACGAACTGGAGCCACCGGTAGCCAAGCCGGAATACATGCGTTCAAC
                                                                                                                                                                                                                                                                                 GATAGCCTCGCGTTTTTTGCATAATATCATTACGAAATATGGTTCGAATCACATCTTCTT
                                                                                                                                                                                                                                                                                                                                            CATCGGGAGCCTCTTCCTGCGAGAGCTGATCAAAGAGTTTTGGCACAGACCACATCTATGG 1030
                                                                                                                                                                                                                                                                                                                                                                                                    GTTCCCCGATCGATACTGCTGCGGTTTATTTGTGGAACCCACGGAGAATCTTTTCAAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTTTAACTGTTCCTACTCCTGCTCCTTCCTTCTGGCTCCGGAAGACCCCCATATTCCCCCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACGTGCTCTGAAGCGTCTGAATCCCGAATCGACGTTCATGGAAGTGCAGCGATGGAACCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CACTGCCCAACGCAATCTGGGCATGAGCGTGGCCTTGCCCGCCTTTGCTGGTCATGTGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGCGGGACCACTGACACCGGCATGGCGACGCTATCAATTACTCCTCCAGCAGGAGATTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGATGGCCCCCTGCCCCCCCCGGCACATCAAGCAGCTTTACCTGCAGCACCGGGTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGAGCATCTGGCTGGACCAGCTTTTCAGGCCTGGCAGCGCATGGGCAACATACGGGGATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCAGGAGGCCATCTGGCAGCGGGTGTACCTGGCCTTGGGCCTGACCCAGGCAGAGATCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCGCCGTCACCTGGACTGGATGGCCCTGATGGGCATCAGTCTGACTATTGC---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTATCACCAGAACGTGTGCACTTGGAGCTATAGCTTTGCATGGTGGGGCATTGAGCAGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTATTACCAGAATGTGTGCACGCAAAGCTACTCCTTCGTGTGGTGGGACTGGGCCCGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQ ID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Adams
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NO 19285; 21pp + Sequence Listing; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       14.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      acid
a and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PWD,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               detection reagent for detecting for elucidating cell signalling
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 369.4; DB 23;
Pred. No. 8.5e-57;
0; Mismatches 741;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Myers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ę
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4740;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             27;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      cell-cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -GCCGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WIPO
                                                                                                                                                          2292
                                                                                                                                                                                                                                                                                 2352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2712
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             910
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   850
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
RESULT 5
ABQ32798
ID ABQ3
XX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                ঠ
                                                                                                                                                                                                                                                                                                           뮍
                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                     멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             멁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  $
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    멅
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         $
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                ABQ32798
                                                                                                                                                                                                                                                                                                                                                                                                                                  1403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1919
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1523
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1691
                                                                                                                                                                                                                                                2099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1757
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1817
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1877
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1934
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1571
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1331
                                                                                                                                                                                                                                                                                                                                                      GACCTTGTGGGGGCCAGAAGGCAACATCCTGGACTATGCCAACAAGCAGCTGGCGGGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCGCCTCTTCCCCAACTCCACCATGGTAGGCACGGGCATGGCCCCCGAGGGCATCAGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           standard; DNA; 706
                                                                                                                                                                                           GGTGAGCGACTACTATAGGCCTCGGTGGAGACTCTTCCTGGAAGATGTG
                                                                                                                                                                                                                                                egregocaacracracaccccrcecregoceccrrrrccregaeececre
                                                                                                                                                                                                                                                                                                                                                                                                                                     GCAAGCGGCACCGAACACTGGGCAACAAAGAAACTTCGAATTCAATGCGAGAAACCAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGCAGCGGCAGTCAGTGAGGCCGAGGCCGATTTCTACGAGCAGAACAGCCGCTACCAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGAGCTGATCCTGGCGAGCAGCAGGAATTTTCTGCTCGGCAACTGGCTGCAGCAGGCCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGACGAGGTGCTGGCTAGTGACAGCCGCTTCTTGCTGGGCAGCTGGCTAGAGCAGGCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCGACAGGTTTCGCGTTTCGAATTCCTTAGCGTCAAGCTGTTGAAACTGTTCGATGACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 egageregecrecrerreagegeregagecerecrecrargaecrecrecrecegeacr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATTCCTGCAGATCAGCGCAGATCAGTTGTATATCAATCTAAGGTCGGCCTA---TAGAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGCAGTGCAGGAGCTGGTCAGCTTGTACTATGAGGAGGCAAGAAGCGCCTACCTGAGCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCGCTAGAGGATAACAGATACGAGATATACGAACACGATTTGGTGGACATAACCAGGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGC------CACCAGCCCGCCTTCCGCTACGACCTGCTGGACCTCACTCGGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ĠŦĂĊĂĂTGCĂAGŦĠCAĠŦĠCTĠĠĂŢĠĊĊŦĠĠĊACTŦĞŦŦĠĊŦĠĂĊCTŦCAGAGĊĊAŦCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGGCCACAATCGTAGCCCGCTGGTCAGGCGGCCGTCCCTACAGATGAATACCAGCATCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGGGGCAGCGTGGAGGCTACTGCTCCGGAGTGTGTACAACTGCTCCGGGGAGGCCTGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TCTGGATAGCTGGTTTACGAATTTCTCACACACAGCCGGTATGGCGTTAAGGATGAGCGTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   rriescascoresersaccascorreccesos ana respecta de la respecta del respecta de la respecta de la respecta del respecta de la respecta del respecta de la respecta de la respecta de la respecta del respecta de la respecta della respecta de la respecta della respecta della respecta de la respecta della respecta della respecta della respecta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GAACTATGTGATGTATTCGTTCACCTTGGAGCGCGGCTGGAGTA---ATACATCCCTAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GAACGAAGTGGTCTATTCCCTCATGGCTGAGCTGGGCTGGCGAAAGGACCCAGTGCCÄGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGGCGCACACTTGGAATGTTTGGATCAGCGAAGCTGATAAATTCCGGAATAGAAGAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGGGGGAAACCATGGTCTTTTTGGAGCCCTAGAGGCTGTGAACGGAGGCCCAGAAGCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATACGAGCTAACGCGCTCCTACTTTGGGCCAGCCCTTTATATGGTGCATGCTTCACAATTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTATACCCGCACTGCCTTCCAGGGCCAGCCCTTCATCTGGTGCATGCTGCACAACTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CACGGCCGCACGTGGTCGCATTTTGGTGCTCGATCTGCAGAGCGAACAGTTTCCGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGGCTGGATGTTCGTGAAGAATCC---CTTTTGGACCACGGACATGGCTGAAGCTTTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCGGGGACAGTATGTAGTGACGCGCA---GGCCTTCCTTCAACCAAGAACCCTTCACTTG
                                                                                                                                                                                                                                                   2147
```

뮍 Ş

2291

B Ś 밁 Ş 밁 δ 밁

2471

971

2098

1344

1404

1978 1464 1858

1918 1524 1798

1641 1750 1701 1690 1758 1630 1818 1570 1878 1510

1581

911

2531

밁 δ

2351

Š 밁 Ş 밁 5

791

2651

2591

g Ś В Ś 밁 Ś

2771

611

2828

551

2711

731

Query Match Best Local S Matches 901

```
This invention describes a novel method for determining the degree of CC methylation of a particular cytosine in a motif 5'-C90-3', present in a CC genomic sample of DNA. The sample is treated chemically to convert CC DNA that contains the target C is amplified to form a labeled amplicon. The amplicon is hybridised to two classes, each with at least one CC member, of oligonucleotides and/or peptide-nucleic acid (PNA) oligomers and the degree of hybridisation to both classes is determined from the CC and the degree of hybridisation to both classes is determined from the CC label on the amplicon. From the ratio of labels hybridised to the two CC classes of oligomers, the degree of methylation is calculated. The method is used: (i) for diagnosis and/or prognosis of side effects of the central nervous, cardiovascular, gastrointestinal and respiratory systems etc., particularly by detecting mutations or single nucleotide polymorphisms (SNP's), and (ii) for differentiation of cell or tissue types and for investigating cell differentiation. The method allows the method for determining the degree of cytosine methylation described in the disclosure of the invention.
                                                                                                                                                                                                                                                                            Query Match
Best Local S
Matches 381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01ek
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            drug; side effect; cancer; central ne gastrointestinal; respiratory system; SNP; cell differentiation; ds.
                                                                                                                                                                                                                                                                                                                                                                       Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Claim 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Determining the degree of cytosine methylation in genomic DNA, useful for diagnosis and prognosis, comprises selective hybridization of amplicons from chemically treated DNA -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-SEP-2000;
05-SEP-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-SEP-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        07-MAR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WO200218632-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Human; cytosine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Oligonucleotide for detecting cytosine methylation SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           12-JUL-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ABQ32798;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (EPIG-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Þ
  214
                                              123
                                                                                            154
                                                                                                                                                                                                                                                                               381;
                                                                                                                                      63
                                                                                                                                                                                    95
                                                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EPIGENOMICS AG.
                                                                                       TTATTTTTTGGTCGCCGGGATTCGTAGGATTGAGATTATGGAGGCGGTGGCGGTGGTC
                                                                                                                                   ccaccccreeccerceceaeacccecaeaeacreaeaeaccareeaeeecc
                                                                                                                                                                                                                       CGGGCTTAGCCTTCGGGTCCACGTGGCCGGAAGGCCGGCAGCTGATTGGACGCGGGCCCC
                                                                                                                                                                                                                                                                                                                                                                       706
                                           CGGGTTTAGTTTTCGGGTTTACGTGGTCGGA-GTCGGTAGTTGATTGGACGCGGGTCGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Piepenbrock C,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   56pp + Sequence Listing; 56pp;
                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                       BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2000DE-1043826
2000DE-1044543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2001WO-EP10074.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         methylation; 5'-CpG-3'; uracil; cytosine; diagnosis;
                                                                                                                                                                                                                                                                                                                                                                       76
                                                                                                                                                                                                                                                                                                                                                                       A; 93 C;
                                                                                                                                                                                                                                                                                             11.9%;
77.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Berlin
                                                                                                                                                                                                                                                                          Score 305.2;
Pred. No. 2e-4
0; Mismatches
                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                                       276 G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ᄶ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        nervous system; cardiovascular;
em; single nucleotide polymorphi
                                                                                                                                                                                                                                                                                                                                                                       261 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Guetig
                                                                                                                                                                                                                                                                                                  2e-45;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        German.
                                                                                                                                                                                                                                                                                                                        띪
                                                                                                                                                                                                                                                                                                                                                                       0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ü
                                                                                                                                                                                                                                                                            108;
                                                                                                                                                                                                                                                                                                                        24;
                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                        Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IJ
                                                                                                                                                                                                                                                                                                                        706;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NO 19389.
                                                                                                                                                                                                                                                                          ۲,
273
                                              182
                                                                                                                                      122
                                                                                                                                                                                  153
                                                                                                                                                                                                                              62
                                                                                       213
```

```
Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                  뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ίδ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ď,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                 Human; cytosine methylation; 5'-CpG-3'; uracil; cytosine; diagnosis; drug; side effect; cancer; central nervous system; cardiovascular; gastrointestinal; respiratory system; single nucleotide polymorphism; SNP; cell differentiation; ds.
                                                                                                                                                                                                                                                                                                                         Oligonucleotide for detecting cytosine methylation
                                                                                                                                                                                                                                                                                                                                                                                                                                   483
                                                                                                                                                                                                                                                                                                                                                                                                                                                   514
                                                                                                                                                                                                                                                                                                                                                                                                                  574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  183
                                                                                                                                                                                                                                                                                                                                                                                                                                   AGGTÁCCGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGGCTGCACCGCTACCTGCGCGACCTTCTGTGGCCTACGTGGCCTGGTCCGGCTCTCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GAGGCGGCGGTCGTGCGGGCGTTCGTGGTTGGGGGTTAGGTTTCGCGGTCGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAGGCGGCGGCGGGCGGCGCTCGTGGCCGGCTGCTGGCGGCCAGGCCCAGGCCCGGCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                   AGGTATCGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTGCGTTTGTCGCGGTTATTGTTAGTCGTGTCGGGGGAGTTGATCGAGGTTACGTTTAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGCGGCGGCGCGCGCGTGCGGGTGCGCGGTTTTACGGGCGTGGCGGTCGTCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTTTTCGTGTCGGTGCAGCGCGTTTTGGTTAAGTCGGGTTTGGATATTTATAGTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGGTTGTATCGTTATTTGCGCGATTTTTGTGGTTGTTACGTGGTTTGGTTCGGTTTTTAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTCTCCGTGTGGGAGCGCGCTCTGGCTGCCAAGCCGGGCTTGGACACCCTACAGCCTG
                                                                                                                                                                                                                                                                                                                                         (first
                                                                                                                                                                                                                                                                                                                                                                         DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                 583
                                                                                                                                                                                                                                                                                                                                                                                                                                   492
                                                                                                                                                                                                                                                                                                                                                                          ΒP
                                                                                                                                                                                                                                                                                                                          SEQ
                                                                                                                                                                                                                                                                                                                          占
                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                          19390.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 513
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 333
```

01-SEP-2001; 2001WO-EP10074

2000DE-1043826. 2000DE-1044543.

AG

ú Berlin ~ Guetig Ö

Determining the degree of cytosine methylation in genomic DNA, for diagnosis and prognosis, comprises selective hybridization amplicons from chemically treated DNA useful of

Claim 12; 56pp + Sequence Listing; 56pp; German

This invention describes a novel method for determining the degree of methylation of a particular cytosine in a motif 5'-CpG-3', present in a genomic sample of DNA. The sample is treated chemically to convert cytosine (C) but not methylated C, to uracil, then part of the genomic DNA that contains the target C is amplified to form a labeled amplicon. The amplicon is hybridised to two classes, each with at least one member, of oligonucleotides and/or peptide-nucleic acid (PNA) oligomers and the degree of hybridisation to both classes is determined from the label on the amplicon. From the ratio of labels hybridised to two two classes of oligomers, the degree of methylation is calculated. The methy e method

밁 Ś 뮍 8 맑 5

```
ARESULT ARECUASION AREA AND AR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local S
Matches 381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       is used: (i) for diagnosis and/or prognosis of side effects of therapeutic drugs and of a wide range of diseases, e.g. cancer, disorders of the central nervous, cardiovascular, gastrointestinal and respiratory systems etc., particularly by detecting mutations or single nucleotide polymorphisms (SNP's); and (ii) for differentiation of cell or tissue types and for investigating cell differentiation. The method allows the methylation status of many C residues to be determined simultaneously. hag013410-ABQ54121 represent genomic DNA sequences used to illustrate the method for determining the degree of cytosine methylation described in the disclosure of the invention.
                                                                                                                                                                                                         Human; cytosine methylation; 5'-CpG-3' drug; side effect; cancer; central ner gastrointestinal; respiratory system;
                                                                                                                                                                                                                                                                                                                                                             Oligonucleotide for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ABQ14172
                                                                                                              Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                  12-JUL-2002
                                                                                                                                                                              cell
                                                                                                          sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     381;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGGTACCGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGCGGCGGCGCGCGCGCGTGCGGGTGCGCGGTTTTACGGGCGTGGCGGTCGTCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TTTTTCGTGTCGGTGGAGCGCGTTTTGGTTAAGTCGGGTTTGGATATTTATAGTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTCTCCGTGTGGGTGGAGCGCGCTTGGGTGCAAGCCGGGCTTGGACACCTACAGCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GAGGCGGCGGTCGTGCGGGCGTTCGTGGTTCGGTTTGGGGGTTAGGTTTCGCGGTCGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GAGGCGGCCGTGCGGGCGCTCGTGGCCCGGCTGCTGGGGCCCAGGCCCCGCGGCCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TTATTTTTTGGTCGTCGCGGGATTCGTAGGATTGAGATTATGGAGGCGGTGGCGGTGGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ccaccccreeccerceceesacccecaesacreaeaccareeseecercece
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGGGTTTAGTTTTCGGGTTTACGTGGTCGGA-GTCGGTAGTTGATTGGACGCGGGTCGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGGGCTTAGCCTTCGGGTCCACGTGGCCGGAGCCGGCAGCTGATTGGACGCGGGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTGCGTTTGTCGCGGTTATTGTTAGTCGTGTCGGGGGAGTTGATCGAGGTTACGTTTAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ствоесствоевесей ствоевесей в температической под представления под
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGGTTGTATCGTTATTTGCGCGATTTTTGTGGTTGTTACGTGGTTTGGTTCGGTTTTTAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AGGTATCGTT
                                                                                                                                                                              differentiation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BP; 261 A; 276 C; 93 G;
                                                                                                                                                                                                                                                                                                                                                                                                                              (first
                                                                                                                                                                                                         methylation; 5'-CpG-3'; uracil; cyt
ct; cancer; central nervous system;
l; respiratory system; single nucle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DNA;
                                                                                                                                                                                                                                                                                                                                                      detecting
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          492
                                                                                                                                                                                                                                                                                                                                                                                                                              entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   11.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              710
                                                                                                                                                                                  ds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 °,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 305.2; I
Pred. No. 2e-49
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                      cytosine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  76 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2e-45;
                                                                                                                                                                                                                                                                                                                                                         methylation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     108;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 24;
                                                                                                                                                                                                                    nucleotide polymorphism;
                                                                                                                                                                                                                                                                                 cytosine;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                                                                                         SEQ
                                                                                                                                                                                                                                                   cardiovascul
                                                                                                                                                                                                                                                                                                                                                             IJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         706;
                                                                                                                                                                                                                                                                                 diagnosis;
                                                                                                                                                                                                                                                                                                                                                             ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            disorders
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 314
```

```
This invention describes a novel method for determining the degree of commethylation of a particular cytosine in a motif 5'-CpG-3', present in a genomic sample of DNA. The sample is treated chemically to convert cytosine (C) but not methylated C, to uracil, then part of the genomic DNA that contains the target C is amplified to form a labeled amplicon. The amplicon is hybridised to two classes, each with at least one can define the amplicon. From the totwo classes, each with at least one can define the amplicon. From the ratio of labels hybridised to the two classes of classes of oligomers, the degree of methylation is calculated. The method is used: (i) for diagnosis and/or prognosis of side effects of the rapeutic drugs and of a wide range of diseases, e.g. cancer, disorders of the central nervous, cardiovascular, gastrointestinal and respiratory systems etc., particularly by detecting mutations or single nucleotide polymorphisms (SNP's); and (ii) for differentiation of cell or tissue types and for investigating cell differentiation. The method allows the method for determining the degree of cytosine methylation described in the disclosure of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-SEP-2000;
05-SEP-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Determining the degree of cytosine methylation in genomic DNA, for diagnosis and prognosis, comprises selective hybridization amplicons from chemically treated DNA -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   01-SEP-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          07-MAR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                          Claim 12; 56pp + Sequence Listing; 56pp; German
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (EPIG-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2002-371829/40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EPIGENOMICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2000DE-1043826.
2000DE-1044543.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2001WO-EP10074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Berlin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ۳
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Guetig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ö
```

Sequence 710 B₽; 78 A; 91 C; 276 G; 262 H ': 3 other;

S 밁 ξ 밁 Ş 맑 S δ 밁 S 밁 δ 밁 밁 Query Match Best Local S Matches 380 547 363 487 303 427 243 367 183 307 123 247 187 63 380; ω Similarity CACCCCTGGCCGTCGCGGGACCCACGACGACCATGGACGATGGCGTTGGCCC CGGGTTTÄGTTTTCGGGTTTÄCGTGGTCGGÄGGTCGGTÄGTTGÄTTGGÄCGCGGGTCGTT CGGGCTTAGCCTTCGGGTCCACGTGGCCGGAGGCCGGCAGCTGATTGGACGCGGGCCGCC calenda de la constanta de la TTATTTTTTGGTCGCGGGATTCGTAGGATTGAGATTATGGAGGCGGTGGCGGTGGTC <u> eaceaceacannaceacececeráceaeracececritinaceaecerecercercace</u> GAGGCGGCGTCGTGCGGCGTTCGTGGTTCGGTTGGGGGTTAGGTTTCGCGGTCGAT Conservative CGGTGGAGCGCGTTTTGGTTAAGTCGGGTTTGGATATTTATAGTTTG 11.8%; 77.4%; o ; Score 304.2; DB 24; Pred. No. 3.1e-45; 0; Mismatches 110; DB 24; Indels Length <u>'</u>. Gaps 242 182 122 62 421 486 426 306 246 909 362 302 366 546

WO200218632-A2

```
RESULT 8
ABQ141
XX
ABQ141
XX
ABQ141
XX
ABQ141
XX
ABQ141
XX
ABQ141
XX
Cligon
XX
Human;
XW
drug;
XW
drug;
XW
drug;
XW
Grug;
XW
Grug
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                  This invention describes a novel method for determining the degree of CC methylation of a particular cytosine in a motif 5'-CpG-3', present in a CC genomic sample of DNA. The sample is treated chemically to convert CC CDNA that contains the target C is amplified to form a labeled amplicon. The amplicon is hybridised to two classes, each with at least one CC member, of oligonucleotides and/or peptide-nucleic acid (PNA) oligoners and the degree of hybridisation to both classes is determined from the CC label on the amplicon. From the ratio of labels hybridised to the two classes of oligomers, the degree of methylation is calculated. The method CC is used: (i) for diagnosis and/or prognosis of side effects of the central nervous, cardiovascular, gastrointestinal and respiratory cystems etc., particularly by detecting mutations or single nucleotide collaboration status of many C residues to be determined allows the method for determining the degree of CYtosine methylation described in the method constitute of the invention. The method allows the method for determining the degree of CYtosine methylation described in the disclosure of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Determining the degree of cytosine methylation in genomic DNA, for diagnosis and prognosis, comprises selective hybridization amplicons from chemically treated DNA -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Olek A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Human; cytosine methylation; 5'-CpG-3'; uracil; cytosine; diagnosis; drug; side effect; cancer; central nervous system; cardiovascular; gastrointestinal; respiratory system; single nucleotide polymorphism
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-SEP-2000; 2000DE-1043826.
05-SEP-2000; 2000DE-1044543.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Oligonucleotide for detecting
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ABQ14173 standard; DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Claim 12; 56pp + Sequence Listing; 56pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (EPIG-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-SEP-2001; 2001WO-EP10074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      07-MAR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WO200218632-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SNP; cell differentiation; ds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        12-JUL-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EPIGENOMICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Piepenbrock C,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CAGGTACCGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTTGCGTTTGTCGCGGTTATTGTTAGTCGTGGGGGGAGTTGATCGAGGTTACGTTTAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TAGGTATCGTT 677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ecrececreceecececacreceeces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Berlin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     cytosine methylation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ζ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Guetig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      German
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       polymorphism;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 useful
of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    481
```

Query Match Best Local Similarity

Sequence 710

262

A; 276 11.8%; 77.4%;

C; 91 G; 78 T; 3 other; Score 304.2; DB 24; Pred. No. 3.1e-45;

Length 710;

```
RESULT 9
ABQ32800/c
ID ABQ328
XX ABQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               멂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Human; cytosine methylation; 5'-CpG-3'; uracil; cytosine; diagnosis; drug; side effect; cancer; central nervous system; cardiovascular; gastrointestinal; respiratory system; single nucleotide polymorphism; SNP; cell differentiation; ds.
  Determining the degree of cytosine methylation in genomic DNA, for diagnosis and prognosis, comprises selective hybridization
                                                                            WPI; 2002-371829/40.
                                                                                                                                                                                                                                01-SEP-2000;
05-SEP-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Oligonucleotide for detecting
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ABQ32800 standard; DNA; 706
                                                                                                                                                                                                                                                                                                           01-SEP-2001; 2001WO-EP10074
                                                                                                                                                                                                                                                                                                                                                               07-MAR-2002
                                                                                                                                                                                                                                                                                                                                                                                                             W0200218632-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  12-JUL-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ABQ32800;
                                                                                                                                                                                  (EPIG-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    524
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          380;
                                                                                                                                                                               EPIGENOMICS AG
                                                                                                                           Piepenbrock
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CAGGTACCGCT 492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCTGCGCCTGCCGCGACCACTGCCAGCCGTGCCGGGGGAGCTGACCGAGGCCACGCCGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GAGGCGGCGGCCGTGCGGGCCCTCGTGGCCCGGGCCCAGGCCCCGCGCCCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTATTTTTTGGTCGTCGCGGGATTCGTAGGATTGAGATTATGGAGGCGGTGGCGGTGGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ccaccccreecerreeceaacccecaegacreagacreagaccareegeereece
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGGGTTTAGTTTTCGGGTTTÄCGTGGTCGGAGGTCGGTÄGTTGÄTTGGACGCGGGTCGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTTGCGTTTGTCGCGGTTATTGTTAGTCGTGTCGGGGGGAGTTGATCGAGGTTACGTTTAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGGTTGTATCGTTATTTGCGCGATTTTTGTGGTTGTTACGTGGTTTGAGTTCGGTTTTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             eeecrecaccecraccreceeeacrrcrereecreccacereecre-ercceecrcrea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGCGGCGGCGNNGCGGCGCGCGTGCGGGTGCGCGGTTTTTACGGGCCGTGGCGGTCGTCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TTTTTCGTGTCGGTGGAGCGCGTTTTGGTTGTTAAGTCGGGTTTGGATATTTATAGTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GAGGCGGCGGTCGTGCGGGCGTTCGTGGTTCGGTTGTTGGGGGTTAGGTTTCGCGGTCGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ceaecriaecciiceeerccacereecceeaecceecaecrearreeaceceecec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTCTCCGTGTCGGTGGAGCGCGCTCTGGCTGCCAAGCCGGGCTTGGACACCTACAGCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                2000DE-1043826
2000DE-1044543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  entry
                                                                                                                                Berlin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cytosine methylation SEQ
                                                                                                                           7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                           Guetig
                                                                                                                           ŭ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          110;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ID NO 19391.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ۳,
     useful
of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      62
```

```
RESULT 10
ABQ32801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FXWXDDDDDDDDDDDDDDDDDDDDDXW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
AXE
                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                        멅
                                                                                                                                                                                                                                                                                                                                                                                                                              5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   This invention describes a novel method for determining the degree of comethylation of a particular cytosine in a motif 5'-CpG-3', present in a company of the particular cytosine in a motif 5'-CpG-3', present in a company of the particular cytosine (C) but not methylated C, to uracil, then part of the genomic CC DNA that contains the target C is amplified to form a labeled amplicon. The amplicon is hybridised to two classes, each with at least one CC member, of oligonucleotides and/or peptide-nucleic acid (PNA) oligomers and the degree of hybridisation to both classes is determined from the CC label on the amplicon. From the ratio of labels hybridised to the two CC classes of oligomers, the degree of methylation is calculated. The method CC is used: (i) for diagnosis and/or prognosis of side effects of the central nervous, cardiovascular, gastrointestinal and respiratory cystems etc., particularly by detecting mutations or single nucleotide CC systems etc., particularly by detecting mutations or single nucleotide cypes and for investigating cell differentiation. The method allows the methylation status of many C residues to be determined simultaneously. CR DRJ13410-ABG54121 represent genomic DNA sequences used to illustrate the method for determining the degree of cytosine methylation described in the disclosure of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Sim:
Matches 353;
ABQ32801;
                                                                ABQ32801 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Claim 12; 56pp + Sequence Listing; 56pp; German
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 706 BP; 87 A; 93 C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      amplicons
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              614
                                                                                                                                                                                                                                                                                                   481
                                                                                                                                                                                                                                                                                                                                                                        195
                                                                                                                                                                                                                                                                                                                                                                                                                                     421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Н
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GAAAAACGACGACCGTACGAACGCTCGTAACCCGACTACTAAAAACCAAAACCCCGCGACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               eesaacececceccices en a consequencia de la consequencia della de
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCCCACCCCTAACCGTCGCGAAACCCGCAAAACTAAAACCATAAAACGATAACGATAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCCCACCCTGGCCGTCGCGGGACCCGCAGGACTGAGACCATGGAGGCGGTGGCGGTGG 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCCGAACTTAACCTTCGAATCCACGTAACC-GAAACCGACAACTAATTAAACGCGAACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCCGGGCTTAGCCTTCGGGTCCACGTGGCCGGAGGCCGGCAGCTGATTGGACGCGGGCCG 60
                                                                                                                                                                                                                                                                                                   ACAGGTACCGC 491
                                                                                                                                                                                                                                                                                                                                                                                                                                     AGCTGCGCCTGCCGGCCACTGCCAGCCGTGCCGGGGGAGCTGACCGAGGCCACGCCCA 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACTTCTCCGTGTCGGAGCGCGCTCTGGCTGCCAAGCCGGGCTTGGACACCTACAGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCGCGACGATAAAAATCCTTCTCCTAACCGAAAACCGAAAACGCGACAAACGACGAAACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cceceecegreeeerccrrcrccreecceeeecceeeeccececaeecaceaecaecce
                                                                                                                                                                                                                                      ACAAATACCGC 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TAAACGACGACGACGCGCGCGTACGAATACGCGACTCCACGAACGTAACGACCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACTTCTCCGTATCGATAAAACGCGCTCTAACTACCAAACCGAACTTAAACACCTACAACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGAAACTACACCGCTACCTACGCGÁCTTCTATAACTACCACGTAACCTAATCCGACTCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      chemically treated DNA
                                                                DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            10.1%;
                                                                    706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 259.8; DB 24; Length Pred. No. 2.5e-37; o; Mismatches 137; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 267 G; 259 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 24; Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                706;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ۲.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                316
```

Ś 밁 Ś

121 152 맑 5

93 61

CCCCACCCCTGGCCGTCGCGGGACCCGCAGGACTGAGACCATGGAGGCGGTGGCGGTGG

CCCCACCCCTAACCGTCGCGAAACCCGCAAAACTAAAACCATAAAAACGATAACGATAACGATAA

211 180

120

151

CCCGAACTTAACCTTCGAATCCACGTAACC-GAAACCGACAACTAATTAAACGCGAACCG

cceceerageserves de la consecuencia della de

GGGAGGCGGCCGTGCGGGCGCTCGTGGCCCGGCTGCTGGGGGCCAGGCCCCGCGGCCG

240 271 Query Match

Local

Similarity

10.1%; 71.9%;

353;

Conservative

0;

Score 259.8; DB 24; Pred. No. 2.5e-37; 0; Mismatches 137;

DB 24; Length 0 other;

Indels

1.

Gaps

60

Sequence

706

BP; 259 A; 267 C; 93

G; 87 T;

δ 片

```
CC mhis invention describes a novel method for determining the degree of CC methylation of a particular cytosine in a motif 5'-CpG-3', present in a CC genomic sample of DNA. The sample is treated chemically to convert CC CYCOSINE (C) but not methylated C, to uracil, then part of the genomic CDNA that contains the target C is amplified to form a labeled amplicon. The amplicon is hybridised to two classes, each with at least one CC and the degree of hybridised to two classes is determined from the CC label on the amplicon. From the ratio of labels hybridised to the two CC classes of oligomers, the degree of methylation is calculated. The method CC is used: (i) for diagnosis and/or prognosis of side effects of the central nervous, cardiovascular, gastrointestinal and respiratory CC of the central nervous, cardiovascular, gastrointestinal and respiratory CC systems etc., particularly by detecting mutations or single nucleotide CC polymorphisms (SNP's), and (ii) for differentiation of cell or tissue CC methylation status of many C residues to be determined simultaneously. CC ABQ13410-ABQ4121 represent genomic DNA sequences used to illustrate the CC method for determining the degree of cytosine methylation described in CC the disclosure of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Human; cytosine methylation; 5'-CpG-3'; uracil; drug; side effect; cancer; central nervous syste gastrointestinal; respiratory system; single nuc SNP; cell differentiation; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                 Claim 12; 56pp + Sequence Listing; 56pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Determining the degree of cytosine methylation in genomic DNA, useful for diagnosis and prognosis, comprises selective hybridization of amplicons from chemically treated DNA \, -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   01-SEP-2000; 2000DE-1043826
05-SEP-2000; 2000DE-1044543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-SEP-2001; 2001WO-EP10074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            07-MAR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Oligonucleotide for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                12-JUL-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EPIGENOMICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Piepenbrock C,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ĄG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             detecting
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Berlin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             cytosine methylation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ×
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Guetig
                                                                                                                                                                                                                                                                                                                                                                                                                     German
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ď,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         system;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          nucleotide polymorphism;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cytosine;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cosine; diagnosis;
cardiovascular;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 19392
```

밁 S 밁 S

δ 밁 Ś 뮹 S

```
RESULT 11
ABQ14170/c
ID ABQ141
XX ABQ141
XX ABQ141
XX Oligon
XX Human;
KW Human;
KW Grug;
KW SNP; co
XX WO2002;
XX WO2002;
XX O1-SEP
PR 01-SEP
PR 
This invention describes a novel method for determining the degree of methylation of a particular cytosine in a motif 5'-CpG-3', present in a genomic sample of DNA: The sample is treated chemically to convert cytosine (C) but not methylated C, to uracil, then part of the genomic DNA that contains the target C is amplified to form a labeled amplicon. The amplicon is hybridised to two classes, each with at least one member, of oligonucleotides and/or peptide-nucleic acid (PNA) oligomers and the degree of hybridisation to both classes is determined from the label on the amplicon. From the ratio of labels hybridised to the two classes of oligomers, the degree of methylation is calculated. The method is used: (i) for diagnosis and/or prognosis of side effects of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Determining the degree of cytosine methylation in genomic DNA, for diagnosis and prognosis, comprises selective hybridization amplicons from chemically treated DNA -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-SEP-2000; 2000DE-1043826.
05-SEP-2000; 2000DE-1044543.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Human; cytosine methylation; 5'.CpG-3'; uracil; cytosine; diagnosis; drug; side effect; canner; central nervous system; cardiovascular; gastrointestinal; respiratory system; single nucleotide polymorphism SNP; cell differentiation; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-SEP-2001; 2001WO-EP10074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      07-MAR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Oligonucleotide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WO200218632-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ABQ14170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (EPIG-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             12-JUL-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2002-371829/40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           572
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EPIGENOMICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Piepenbrock C,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      standard; DNA; 710
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               igeeceeceececececececeieces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GAAAAACGACGTACGAACGCTCGTAAACCCGACTACTAAAACCAAACCCCGCGACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACAGGTACCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGCTGCGCCTGCCGCGGCCACTGCCAGCCGTGCCGGGGGAGCCTGACCGACGCCCACGCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TAAACGACGACGACGCGACGCGTACGAATACGCGACTCCACGAACGTAACGACCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACTTCTCCGTATCGATAAAACGCGCTCTAACTACCAAACCGAACTTAAACACCTACAACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACTICICCGIGICGGAGCGCGCICTGGCCAAGCCGGGCTIGGACACCTACAGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AACTACGCCTACCGCGACCACTACCAACCGTACCGAAAAAACTAACCGAAACCACGCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGAMACTACACCÓCTACCCACGACTTCTATAACTACCACGTAACCTAATCCGACTCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      cessecrecaccecracerscare references of the content o
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              56pp + Sequence Listing; 56pp; German.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          detecting
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Berlin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 쁀
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          cytosine methylation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ~
,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Guetig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ü
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 polymorphism;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         571
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 331
```

```
밁
                    ð
                                                     밁
                                                                            S
                                                                                                                밁
                                                                                                                                    Ś
                                                                                                                                                                   뮍
                                                                                                                                                                                               Ś
                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                             맑
                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           88888888888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local S
Matches 351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  therapeutic drugs and of a wide range of diseases, e.g. cancer, disorder; of the central nervous, cardiovascular, gastrointestinal and respiratory systems etc., particularly by detecting mutations or single nucleotide polymorphisms (SNP's); and (ii) for differentiation of cell or tissue types and for investigating cell differentiation. The method allows the methylation status of many C residues to be determined simultaneously. ABQ13410-ABQ54121 represent genomic DNA sequences used to illustrate the method for determining the degree of cytosine methylation described in the disclosure of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 710
                                                         106
                                                                                                                 166
                          480
                                                                                     420
                                                                                                                                             361
                                                                                                                                                                           226
                                                                                                                                                                                                      301
                                                                                                                                                                                                                                   286
                                                                                                                                                                                                                                                               241
                                                                                                                                                                                                                                                                                           346
                                                                                                                                                                                                                                                                                                                                                     406
                                                                                                                                                                                                                                                                                                                        181
                                                                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                                                                                                                               466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               351;
4
                                                                                                                                                                                                                                                                                                                                                                                                                                         61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     \vdash
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                          AACAGGTACCGC
                                                        CAACTACGCCTACCGCGACCACTACCAACCGTACCGAAAAAACTAACCGAAACCACGCCC
                                                                                                                                                                                                                                                                                                                                                                         CCCCACCCCTGGCCGTCGCGGGACCCGCAGGACTGAGACCATGGAGGCGGTGGCGGTGG
AACAAATACCGC
                                                                                    CAGCTGCCCTGCCGCGCCACTGCCAGCCGTGCCGGGGGAGCTGACCGAGGCCACGCCC
                                                                                                                 CGAPACTACACCCCTACCTACGCGACTTCTATAACTACCACGTAACCTAPATCCGACTCT
                                                                                                                                            TAMACGACGACGNNACGACGCGCGTACGAATACGCGACTCCACGAACGTAACGACCGCCG
                                                                                                                                                                                                   ACTTOTOCOTATOGATAAAACGOGOTOTAACTACCAAACCGAACTTAAACACCTACAACC
                                                                                                                                                                                                                                                         ACTICICCGIGICGGIGGAGCGCGCTCTGGCCAAGCCGGGCTTGGACACCTACAGCC
                                                                                                                                                                                                                                                                                           GAAAAACGACGACCGTACGAACGCTCGTAAACCCGACTACTAAAAACCAAAACCCCGGCGACCG
                                                                                                                                                                                                                                                                                                                        eegaeeceeccereceececercerececcecrecreecceeccaeecccececce
                                                                                                                                                                                                                                                                                                                                                     CCGCGACGATAAAAATCCTTCCTAACCGAAACCGAAAACGCGACAAACGACGAAACCC
                                                                                                                                                                                                                                                                                                                                                                                                             CCCCACCCCTAACCGTCGCGAAACCCGCAAAACTAAAACCATAAAACGATAACGATAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCCGAACTTAACCTTCGAATCCACGTAACCGAAAAACCGACAACTAATTAAACGCGAACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCCGGGCTTAGCCTTCGGGTCCACGTGGCCGGAGGCCGGCAGCTGATTGGACGCGGGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BP; 103 A; 91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          10.0%;
                            491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ü
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 257.2; DB 24;
Pred. No. 7.3e-37;
0; Mismatches 140;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         250 G; 263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          710;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ۲,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       disorders
                                                        47
                                                                                    479
                                                                                                                107
                                                                                                                                                                          167
                                                                                                                                                                                                      360
                                                                                                                                                                                                                                  227
                                                                                                                                                                                                                                                              300
                                                                                                                                                                                                                                                                                                                      240
                                                                                                                                                                                                                                                                                                                                                    347
                                                                                                                                                                                                                                                                                                                                                                                180
                                                                                                                                                                                                                                                                                                                                                                                                             407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      467
                                                                                                                                                                                                                                                                                           287
```

RESULT 12
ABQ14171
ID ABQ14
XX
ABQ14
ABQ16
AB

ABQ14171 standard; DNA; 710 ₽₽

12-JUL-2002 (first entry,

Oligonucleotide for detecting cytosine methylation OES IJ ĕ 762.

drug; side effect; cancer; central ne gastrointestinal; respiratory system; Human; cytosine differentiation; methylation; 5'-CpG-3'; uracil; cytosine; diagnosis; ct; cancer; central nervous system; cardiovascular; rvous system; single nucle nucleotide polymorphism;

sapiens

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                             Š
                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     This invention describes a novel method for determining the degree of commethylation of a particular cytosine in a motif 5'-CpG-3', present in a genomic sample of DNA. The sample is treated chemically to convert cytosine (C) but not methylated C, to uracil, then part of the genomic DNA that contains the target C is amplified to form a labeled amplicon. The amplicon is hybridised to two classes, each with at least one member, of oligonuclectides and/or peptide-nucleic acid (PNA) oligomers and the degree of hybridisation to both classes is determined from the label on the amplicon. From the ratio of labels hybridised to the two classes of oligomers, the degree of methylation is calculated. The method is used: (i) for diagnosis and/or prognosis of side effects of therapeutic drugs and of a wide range of diseases, e.g. cancer, disorders of the central nervous, cardiovascular, gastrointestinal and respiratory systems etc., particularly by detecting mutations or single nucleotide polymorphisms (SNP's), and (ii) for differentiation of cell or tissue types and for investigating cell differentiation. The method allows the methylation status of many C residues to be determined simultaneously. ABQ13410-ABQ54121 represent genomic DNA sequences used to illustrate the method for determining the degree of cytosine methylation described in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Claim 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Determining the degree of cytosine methylation in for diagnosis and prognosis, comprises selective lamplicons from chemically treated DNA -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WPI; 2002-371829/40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Olek A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-SEP-2000;
05-SEP-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-SEP-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         disclosure of the invention
545
                                                      361
                                                                                                                   485
                                                                                                                                                                          301
                                                                                                                                                                                                                                          425
                                                                                                                                                                                                                                                                                                 241
                                                                                                                                                                                                                                                                                                                                                              365
                                                                                                                                                                                                                                                                                                                                                                                                                        181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        351;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              μ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               710
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCCGAACTTAACCTTCGAATCCACGTAACCGAAAAACCGACAACTAATTAAACGCGAACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Piepenbrock C,
CGAAACTACACCGCTACCTACGCGACTTCTATAACTACCACGTAACCTAAATCCGACTCT
                                                      ceeeecrecaccecracciececeacricierescreccacereecci-eercceecici
                                                                                                                                                                             ACTICICCGIGICGGIGGAGCGCGCICTGGCTGCCAAGCCGGGCTTGGACACCTACAGCC
                                                                                                                                                                                                                                                                                                                                                              GAAAAACGACGACCGTACGAACGCTCGTAACCCGACTACTAAAAACCAAACCCCGCGACCG
                                                                                                                                                                                                                                                                                                                                                                                                                     esea de construir de la constr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCGCGACGATAAAAATCCTTCCTAACCGAAACCGAAAACGCGACAAACGACGAAAACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCCCACCCCTAACCGTCGCGAAACCCGCAAAACTAAAACCATAAAAACGATAACGATAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ccccaccccreeccerceceaacccccaaeaacreaaeaccareeaeecearee
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCCGGCTTAGCCTTCGGGTCCACGTGGCCGGAGGCCGGCAGCTGATTGGACGCGGGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            56pp + Sequence Listing; 56pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2000DE-1043826
2000DE-1044543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2001WO-EP10074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           263 A; 250 C; 91 G; 103 T; 3 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              10.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Berlin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 257.2; DB 24; Pred. No. 7.3e-37;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              7,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Guetig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      German
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    140; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ü
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      n genomic DNA, useful hybridization of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              710;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          60
906
                                                      419
                                                                                                                   544
                                                                                                                                                                             360
                                                                                                                                                                                                                                          484
                                                                                                                                                                                                                                                                                                 300
                                                                                                                                                                                                                                                                                                                                                              424
                                                                                                                                                                                                                                                                                                                                                                                                                            240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     364
```

Ş

S

Ś

片

```
RESULT 13
ABL22584/c
ID ABL225
XX ABL225
XX ABL225
XX Drosop
XX Uenter
XX WPI; 2
XX Claim
XX Cl
                                                                              В
                       S
                                                                                                                               S
                                                                                                                                                                                      묽
                                                                                                                                                                                                                                       5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                 Query Match
Best Local S
Matches 203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     The invention relates to an isolated nucleic acid detection reagent capable of detecting 1000 or more genes from prosophila. The invention useful in developmental biology and in elucidating cell signalling and cell-cell interactions in higher eukaryotes for the development of insecticides, therapeutics and pharmaceutical drugs. The invention discloses genomic DNA sequences (ABLIGITG-ARIGISII), expressed DNA sequences (ABLIGITG-ARIGISII), expressed DNA sequences (ABLIGITG-ARIGISII), expressed DNA sequences (ABLIGITG-ARIGISII), expressed DNA sequences (ABLIGITG-ARIGISII).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             New isolated nucleic acid genes from Drosophila and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Claim 1; SEQ ID NO 19225; 21pp + Sequence Listing; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Drosophila; developmental biology; cell signalling;
pharmaceutical; gene; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Drosophila melanogaster genomic polynucleotide SEQ
                                                                                                                                                                                                                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Venter JC,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             23-MAR-2000; 2000US-191637P
11-JUL-2000; 2000US-0614150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WO200171042-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Drosophila melanogaster
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      26-MAR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ABL22564;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ABL22584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                at ftp.wipo.int/pub/published_pct_sequences.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      interactions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (PEKE)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              23-MAR-2001; 2001WO-US09231.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ABB57737-ABB72072)
                            1894
                                                                                                                                                                                               7145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2001-656860/75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      420
                                                                                                                                                                                                                                                                                                    203;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ë
                                                                                                                                                                                                                                                                                                                              Similarity
TGGCCTATGAGCTGCCGGCACTGGACGAGGTGCTGGCTAGTGACAGCCGCTTCTTGC
                                                                                                                                                                                                                                                                                                                                                                                                               7222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  standard; DNA; 7222 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AACAGGTACCGC 491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CAACTACGCCTACCGCGACCACTACCAACCGTACCGAAAAAAACTAACCGAAACCACGCCC 664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CAGCTGCGCCTGCCGCGGCCACTGCCAGCCGTGCCGGGGGAGCTGACCCAAGGCCACGCCC
                                                                                                                                  <u> AGGCAAGAAGCGCCTACCTGAGCAAGGAGCTGGCCTCCCTGTTGAGGGCTGGAGGCGTCC</u>
                                                                                                                                                                                            ACGATTTGGTGGACATAACCAGGCAATTCCTGCAGATCAGCGCAGATCAGTTGTATATCA
                                                                                                                                                                                                                                             <u> АССАССТССТСВАСТСАСТССССАССАССАСТССАССТССТСАССТАСТАТСВАСС</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AACAAATACCGC
                                                                                   ATCTAAGGTCGGCCTA---TAGAAAGCGACAGGTTTCGCGTTTCGAATTCCTTAGCGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CORP NY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Adams M,
                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (first entry
                                                                                                                                                                                                                                                                                                                                                                                                               BP;
                                                                                                                                                                                                                                                                                                                                                                                                               2085
                                                                                                                                                                                                                                                                                                                              3.5%;
54.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     匚
                                                                                                                                                                                                                                                                                                                                                                                                               A; 1560 C; 1634 G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                detection reagent for detecting for elucidating cell signalling
                                                                                                                                                                                                                                                                                                 Score 89.2; DI
Pred. No. 7.1e
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Myers
                                                                                                                                                                                                                                                                                                                              DB 23;
.1e-07;
                                                                                                                                                                                                                                                                                                                                                                                                                  1943
                                                                                                                                                                                                                                                                                                       168;
                                                                                                                                                                                                                                                                                                                                                                                                                  T; 0 other;
                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                     Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NO 19225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                and cell
                                                                                                                                                                                                                                                                                                       س
--
                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               more
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WIPO
                                  1953
                                                                                      7029
                                                                                                                                          1893
                                                                                                                                                                                                 7086
                                                                                                                                                                                                                                                      1833
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      25
```

```
RESULT 14
ANX53491/c
ID AAX534
XX AAX534
XX DAX534
XX OS-JUL
XX Antise
XW Antise
XW Antise
XW Limpair
XW Pulmon
XW Colon
XW Pulmon
XW Colon
XW Pulmon
XX Vogelo
XX Vog
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                          The specification describes antisense oligonuclectides (AAX52869-X55271) directed against at least 2 mRNAs selected from target genes, coding and non-coding regions of RNAs corresponding to target genes, gene initiation codons, genomic flanking regions, intron-exon borders, the 5'-end, the 3'-end and the juxta-section between coding and non-coding regions and all segments of RNAs encoding proteins associated with one or more diseases, conditions or mixtures. The antisense oligonucleotides oligonucleotides (specifically AAX55180-271) can be used for the antisense treatment of diseases and conditions. Typical diseases and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            09-JUN-1998;
17-SEP-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Antisense oligonucleotide; multiple target; antisense treatment; impaired respiration; inflammation; lung disease; pulmonary vasoconstriction; inflammation; allergic rhinitis; acute asthma; allergy; asthma; impeded respiration; respiratory distress syndrome; pain; cystic fibrosis;
      conditions are those
                                                                                                                                                                                                                                                                                                                                                                                                                                      New antisense oligonucleotides used vasoconstriction
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        17-SEP-1998;
                                                                                                                                                                                                                                                                                                                                                                           Disclosure; Page 37; 120pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WPI; 1999-229400/19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       25-MAR-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WC9913886-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            prostate cancer; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       pulmonary hypertension, pulmonary vasoconstriction; emphysema; chronic obstructive pulmonary disease; leukemia; lymphoma; carcinoma; colon cancer; breast cancer; lung cancer; panoreatic cancer; colon cancer; brast cancer; lung cancer; melanoma; hepatic metastasis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Human adenosine Al receptor antisense oligonucleotide fragment.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAX53491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAX53491 standard; DNA; 114955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8069
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             7028
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AIND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCCTGGAAGATGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TCCTGGAGGCGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATGCGTGCAAACAGTGGTCCGGCTTGGTGAGCGACTACTATAGGCCTCGGTGGAGACTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   argccaacaagcagcreecegerriegreeccaacraccacccccccccecreecegerrr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TCGAATTCAATGCGAGAAACCAAATTACCGCCTGGGGTCCTGATGGTCAGATCCTGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACGAGCAGAACAGCCGCTACCAGCTGACCTTGTGGGGGGCCAGAAGGCCAACATCCTGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCGGCAACTGGCTGCAGCAGGCCAAGCAAGCGGCACCGAACACTGGGCAACAAGAAAACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGCTGTTGAAACTGTTCGATGACATGGAGCTGATCCTGGCGAGCAGCAGGAATTTTCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EAST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        98US-0093972
97US-0059160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     98WO-US19419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     entry)
      associated with impaired respiration and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6775
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       in treatment of,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       melanoma; hepatic metastasis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    e.g.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       pulmonary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2073
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               6909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6969
```

```
ARESULT 15
AAT91361/
ID AAT9
XX AAT9
XX AAT9
XX DT 14-A
XX Para
XX Para
XX Bchi
XW Bchi
XW Bchi
XW Coste
XX Oste
XX Cost
XX Co
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            몺
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      뭕
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    맒
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          តិតិតិតិតិតិតិតិនិង្ង
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Simi
Matches 159;
                                                                             promoter
                                                                                                                                                                                                                                                                                                                                                                    Orf virus
                                                                                                                                                                                                                                                                                                                                                                                                                                        Ostertagia; Taenia ovis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Parapoxvirus; vector; vaccine;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Orf virus genomic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAT91361;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAT91361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      inflammation, including lung diseases, pulmonary vasoconstriction, inflammation, allergic rhinitis, acute asthma, allergies, asthma, impeded respiration, respiratory distress syndrome, pain, cystic fibrosis, pulmonary hypertension, pulmonary vasoconstriction, emphysema, chronic obstructive pulmonary disease (COPD), and cancers such as leukemias, lymphomas, carcinomas e.g. colon cancer, breast cancer, lung cancer, pancreatic cancer, hepatocellular carcinoma, kidney cancer, melanoma, hepatic metastases, as well as all types of cancers which may metastasize or have metastasized to the lungs, including breast and prostate cancer.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Echinococcus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             14-APR-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 104458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           104578
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         104638
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    104698
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                104878
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  104818
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        standard; DNA; 4020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NSCCCVGGCCVGCGGNNHNNNSGCCCVGGCCVGCCGNNHNNNSCGCCCVGGCCVGCGGNN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GNNHNNNS VGGCCVGCGGNNHNNNS CVGGCCVGCGGNNHNNNS CCVGGCCVGCGGNNHNN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     114955 BP; 6071 A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CVGCGGNNHNNNSCGGCCGGCGCGCGCCCVGGCCVGCGGNNHNNNS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GNNHNNNSGCCGGCGCGCCCCVGGCCVGCGNNHNNNSGGCCGGCGGCGCCCCVGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VGGCCVGCGNNHNNNSGGCGCGCGCCCVGGCCVGCGGNNHNNNSCGGCGCGCGCCCVGGCCVG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HNNNSGCGCCCVGGCCVGCGGNNHNNNSCGCGCCCVGGCCGGNNHNNNSGCGCGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCCGCAGGACTGAGACCATGGAGGCGGTGGCGGTGGCCGCGGCGGTGGGGGTCCTTCTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CAGCCGTGCCGGGGAGCTGACCGAGGCCACGCCCAACAGGTACCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACTTCTGTGGCTGCCACGTGGCCTGGTCCGGCTCTCAGCTGCGCCTGCCGCCGCCACTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NNHNNNSCGGCGGCGCGCCCVGGCCVGCGGNNHNNNSCCGGCGGCGCGCCCVGGCCVGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGCGGGTGCGCGCCACGGCGTGGCGGCCGCGGGGCTGCACCGCTACCTGCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGGNNHNNNSGCGGCGCGCCCVGGCCVGCGGNNHNNNSGGCGGCGCGCCCVGGCCVGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 rcereecceecrecreecececceccecceccecceccerercrecerereeces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                elecceda eleccede de la constanta de la consta
                                                                                                                                                                                                                                                                                                                                                                    strain NZ-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   granulosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (first
                                                                             complement (662..694)
                                                                                                                                                                                                                                                                                  Location/Qualifiers
                                                                                                                   /note= "putative E1L
                                                                                                                                                                   /label=
    'label= PE1L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DNA BamHI E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3.1%; Score 80.4; DB 20
34.0%; Pred. No. 3.1e-05;
tive 55; Mismatches 253
                                                                                                                                                                   E1L
                                                                                                                                                                                                                                                                                                                                                                                                                                             Trichostronglylus; Haemonchus; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     29417 C; 36712 G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            and BamHI G fragments
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          antigen; HIV; herpes simplex virus;
                                                                                                                   coding
                                                                                                                        sequence'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       253;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          21328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 114955;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Τ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          21427 other,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 104412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                104459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  104759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                104819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           104519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         104579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    104639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   104699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
```

```
This genomic DNA molecule comprises the BamHI F and BamHI G fragments of the orf virus strain NZ-2 genome incorporating intergenic regions suitable as foreign gene insertion sites. A claimed parapoxvirus vector comprises a parapox virus (especially an orf virus) containing exogenous DNA. Vector fragments or variants with equivalent immunological activity and host cells (especially bovine or ovine testis cells) incorporating the vector are also claimed. The vector and fragments/variants are useful in vaccine production (claimed), since they can express antigens, useful in medical and veterinary applications e.g. parasitic disease control in livestock. Particular antigens include HIV envelone myotein between elements of the control o
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Parapoxvirus vectors containing exogenous DNA - comprise parapox virus, especially orf virus, and exogenous DNA encoding a polypeptide, e.g. an antigen useful in vaccines
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          misc_feature
       envelope protein,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            27-MAR-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       09-OCT-1997.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WO9737031-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               promoter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Claim 12; Fig 9; 73pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WPI; 1997-503116/46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  29-MAR-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              promoter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             promoter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (UYOT-) UNIV OTAGO.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ם,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Robinson
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  96NZ-0286284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            97WO-NZ00040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note= "putative GIL coding complement (3838..3876)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      complement (2243..2276)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note= "intergenic region gene insertion" complement (1708..1732)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     complement (1440..1661)
/*tag= d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note= "intergenic region suitable
    gene insertion"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note= "putative E1L gene promoter"
736..1439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note= "intergenic region preferred
    gene insertion (Claim 13)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note= "putative E3L coding region"
2226..2286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          note= "putative
838..4009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     note= "putative E3L gene"
complement (2287..3837)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            note= "putative E2L gene
complement (1726..2224)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          'note= "pu
|662..1726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     label= PG1L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                *tag=
       herpes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   label=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          label= PE2L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     label=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ł
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    "intergenic region suitable for foreign gene insertion"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          "putative E2L coding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GIL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene
simplex glycoprotein,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GIL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                promoter'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           promoter"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             promoter"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    suitable
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sequence'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              region"
antigens of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            foreign
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       foreign
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                foreign
```

```
á
                                                                                                                                                    밁
                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                និនិនិនិនិនិន័ଞ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Echinococcus granulosis, Trichostronglylus, Haemonchus, Ostertagia and especially Taenia ovis 45%, 16 kd, 18 kd antigens. The foreign gene is preferably incorporated in a non-essential region of the virus genome (see AAT91357-61) under control of a poxvirus promoter, especially orf virus promoter SI., FIL or F3R (see AAT91362-64). The orf virus vectors limit the cross-species infection common with e.g. vaccinia virus vectors, since the virus has a narrow host range,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 4020 BP; 755 A; 1310 C; 1278 G; 677 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      orf is also less virulent than vaccinia in man.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1042
                                                                                                                                                        608
                                                                                                                                                                                                                                                                                                            862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        982
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              111
749
                                                                          411
                                                                                                                                                                                                                                  351
                                                                                                                                                                                                                                                                                                                                                                                      291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    178;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        cceeaceceeceecececreccecreeceececrecreccecececececececececece
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCCGCCCGCCGGGGGCGCCGCCGCAGCCCTTGCC
                                                                                                                                                    CCCGCGGTGGCGGCGGCTGGCGCGCGCGCGGCGGCGGGCGGGGGTAGCG
                                                                                                                                                                                                                              eceeccecceceecaccecraccrecraccrececeacricis are received as a consequence of the conseque
                                                                                                                                                                                                                                                                                                            ccceceactrorccererceaeeeecrcreecreccaaecceeecrreeac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GACGAGGCCCGGGAGGCCGCCGCCGTGCGGGCCTCGTGGCCCGGCTGCTGGGGCCAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                rcceecrorececciccecececcaciecc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .
.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 71; DB 18
Pred. No. 0.0012
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches 150;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 18; Length 4020;
715
                                                                          445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                        750
                                                                                                                                                                                                                                  410
                                                                                                                                                                                                                                                                                                            810
                                                                                                                                                                                                                                                                                                                                                                                      350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        923
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                983
```

44444444444444444444444

Search completed: February 13, 2004, 09:26:48
Job time : 682 secs

```
Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OM nucleic - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          22781392 seqs, 12152238056 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   February 13, 2004, 09:06:34; Search time 5297 Seconds (without alignments) 11814.995 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-09-836-613-1
2575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCCGGGCTTAGCCTTCGGGT.....AGTCGAGCGGCCGCGAATTC 2575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GenCore version 5.1.6
Copyright (c) 1993 - 2004 Compugen Ltd.
                                                                                                                                                                                                                                                      em estro
estro: * *
gb estro: * *
gb estro: * *
gb htc: * *
gb estro: * *
                                                                                                                                                                                                                                                                                                                                                                                                                    em_estba:*
em_esthum:*
em_estin:*
                                                                                                                                                                                                                                                                                                                                                                      em_estov:*
em_estpl:*
em gss pro:*
em gss rod:*
em gss phg:*
em gss vrl:*
gb gss!:*
gb gss2:*
                                                                                                            em gss hum: *
em gss inv: *
em gss pln: *
em gss vrt: *
em gss fun: *
em gss mam: *
                                                                                                                                                                                                          gb_est5:*
em_estfun:*
em_estom:*
                                                                                                                                                                                                                                                                                                                                                                                                        em_estmu:*
                                                                                            em_gss_mus:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 45562784
```

οο	αα α	0 0 0	ממ מממ	0 000
044444 00112847	3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	100000000000000000000000000000000000000	12 14 15 16 18	5 6 7 8 9 10
576.22	01 1 12 3340 0 1 6 1 7 8 3 8 0 1 6 1 6 1 6 1 6 1 6 1 6 1 6 1 6 1 6 1		7 67 7 67	753 748.6 748.4 745 745 741.8 739.4
8888866	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3		90007779	0000000
συσονον	66666666666666666666666666666666666666	~ O L O L O 4 O 4	J 10 0 D 0 0 H N	10 to 00 -1 (0 -1 00
12 12 13 13	13 13 14 15 15 15 15 15 15 15 15 15 15 15 15 15	13 14 10 10 10 13	112 113 113	120 011 9 11 12 12 12 12 12 12 12 12 12 12 12 12
2347394 23759082	410000000000000000000000000000000000000	1767 1767 1767 1767 1767	440000004 4000000000000000000000000000	6756675 45665 456664
84286 19892 73017 57975 54545 73703 22969	777244 A(142714 A(142	7673 9269 9269 8953 1461 7971 7971 7972 t	10492 6 76070 6 72664 U 726637 U 26804 U 18688 U 32129 U 32327 II	0547 6 1701 U 4565 U 6832 U 592 AU 7597 6

ALIGNMENTS

	COMMENT	TITLE JOURNAL	AUTHORS	REFERENCE	ORGANISM	SOURCE	KEYWORDS	VERSION	ACCESSION	DEFINITION	RESULT 1 BM473725
Tissue Producement: ATCC/DCTD/DTP CDNA Library Preparation: Life Technologies, Inc. cDNA Library Preparation: Life Technologies, Inc. cDNA Library Preparation: Life Technologies, Inc. cDNA Sequencing by: The I.M.A.G.E. Consortium Clone distribution: MGC clone distribution information can be found through the I.M.A.G.E. Consortium/LLNL at: http://image.llnl.gov Plate: LLAM12230 row: j column: 11 High quality sequence stop: 679.	Contact: Robert Strausberg, Ph.D.	National Institutes of Health, Mammalian Gene Collection (MGC) Unpublished	nci.nih.gov/.	Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.	Homo sapiens Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;	Homo sapiens (human)	BOH.	BM473725.1 GI:18522767	5', mRNA sequence.	M4/3/25 952 bp mkNA linear EST 05-FEB-2002 AGENCOURT 6484269 NIH MGC 72 Homo sapiens cDNA clone IMAGE:5538154	

Regult No.

Score

Query Match Length DB

ij

929.4 800.2 791.8 789.6

36.1 31.1 30.7 30.7

952 904 908 925

BM473725 BU182537 BI667002 BQ893829

BM473725 AGENCOURT BU182537 AGENCOURT BI667002 603291867 BQ893829 AGENCOURT Description

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BASE CO
                      밁
                                           δ
                                                                            밁
                                                                                                  δ
                                                                                                                             Ъ
                                                                                                                                                          Ş
                                                                                                                                                                                          밁
                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                占
                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                     Ϋ́
                                                                                                                                                                                                                                                                                                                                                                                                                     片
                                                                                                                                                                                                                                                                                                                                                                                                                                             γŞ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
Matches 933; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1070
                                                                                                                                                                                                                                                                             1430
                                                                                                                                                                                                                                                                                                                                   1370
                                                                                                        1610
                                                                                                                                                                                                                       1490
                                                                                                                                                                                                                                                                                                                                                                                        1310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1010
                                                  1670
                                                                                                                                     613
                                                                                                                                                                                          553
                                                                                                                                                                                                                                                                                                        433
                                                                                                                                                                                                                                                                                                                                                             373
                                                                                                                                                                                                                                                                                                                                                                                                                      313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        133
                                                                               673
                                                                                                                                                                                                                                                  493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 950
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGGCACAGACCACATCTATGGGGCCGACACTTTCAATGAGATGCAGCCACCTTCCTCAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGAAGACCCCATATTCCCCATCATCGGGAGCCTCTTCCTGCGAGAGCTGATCAAAGAGTT
                                                                                                       CTGCTCCGGGGAGGCCTGCAGGGGCCACAATCGTAGCCCGCTGGTCAGGCGGCCGTCCCT
                                                                                                                                                                                             GCGAAAGGACCCAGTGCCAGATTTGGCAGCCTGGGTGACCAGCTTTGCCGCCCGGCGGTA
                                                                                                                                                                                                                    GCGAAAGGACCCAGTGCCAGATTTGGCAGCCTGGGTGACCAGCTTTGCCGCCCGGCGGTA 1549
                                                                                                                                                                                                                                                                             GGCCCCCGAGGGCATCAGCCAGAACGAAGTGGTCTATTCCCTCATGGCTGAGCTGGGCTG 1489
                                                                                                                                                                                                                                                                                                         GAACGGAGGCCCAGAAGCTGCCCGCCTCTTCCCCCAACTCCACCATGGTAGGCACGGGCAT
                                                                                                                                                                                                                                                                                                                                   GAACGGAGGCCCAGAAGCTGCCCGCCTCTTCCCCCAACTCCACCATGGTAGGCACGGGCAT
                                                                                                                                                                                                                                                                                                                                                               CTGGTGCATGCTGCACAACTTTGGGGGAAACCATGGTCTTTTTTGGAGCCCTAGAGGCTGT
                                                                                                                                                                                                                                                                                                                                                                                 CTGGTGCATGCTGCACAACTTTGGGGGGAAACCATGGTCTTTTTTGGAGCCCTAGAGGCTGT
                                                                                                                                                                                                                                                                                                                                                                                                                      GTTTGCTGAGAGCCAGCCTGTGTATACCCCGCACTGCCTTCCAGGGCCAGCCCTTCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                GTTTGCTGAGAGCCAGCCTGTGTATACCCGCACTGCCTCCTTCCAGGGCCAGCCCTTCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGCCCAGATCAGGGCTGTGCTGGAAGCTGTGCCCCGTGGCCGCCTCCTGGTTCTGGACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGCCCAGATCAGGGCTGTGCTGGGAGCTGTGCCCCGTGGCCGCCTCCTGGTTCTGGACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGAGGCTGTGTGGCTGCTCCAAGGCTGGCTCTTCCAGCACCAGCCGCAGTTCTGGGGGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGAGGCTGTGTGGGCTCCAAGGCTGGCTCTTCCAGCACCAGCCGCAGTTCTGGGGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCCCTCCTACCTTGCCGCAGCCACCACTGCCGTCTATGAGGCCATGACTGCAGTGGATAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCCCTCCTACCTTGCCGCAGCCACCACTGCCGTCTATGAGGCCATGACTGCAGTGGATAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGGCACAGACCACATCTATGGGGCCGACACTTTCAATGAGATGCAGCCACCTTCCTCAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGAAGACCCCATATTCCCCCATCATCGGGAGCCTCTTCCTGCGAGAGCTGATCAAAGAGTT
GCTCACATCTGCTCCCTTGGCCACCAGCCCCGCCTTCCGCTACGACCTGCTGGACCT
                                                 ACAGATGAATACCAGCATCTGGTACAACCGATCTGATGTTTTGAGGCCTGGCGGCTGCT 1729
                                                                                                                                     TGGGGTCTCCCACCCGGACGCAGGGGCAGCGTGGAGGCTACTGCTCCGGAGAGTGTACAA
                                                                                                                                                                TGGGGTCTCCCACCCGGACGCAGGGGCAGCGTGGAGGCTACTGCTCCGGAGTGTGTACAA 1609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          36.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ; Score 929.4;
; Pred. No. 2.2e
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; DB 12;
2.2e-164;
Les 7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         952;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                                                          1669
                                                                                                                                                                                                                                                                                                                                   1429
                                                                                                                                                                                                                                                                                                                                                                                          1369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1069
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1189
                                                                               732
                                                                                                                                     672
                                                                                                                                                                                             612
                                                                                                                                                                                                                                                   552
                                                                                                                                                                                                                                                                                                         492
                                                                                                                                                                                                                                                                                                                                                               432
                                                                                                                                                                                                                                                                                                                                                                                                                      372
                                                                                                                                                                                                                                                                                                                                                                                                                                                   1309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
```

```
REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 2
BU182537
LOCUS
                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     뮍
                    Ś
                                                         몺
                                                                                                                            B
                                                                                                                                                            δ
                                                                                                                                                                                                닭
                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                               BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCESSION
                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity
Matches 864; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   source
                                                                                                                                                                  1523
                                                                                                                                                                                                                                     1463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1850
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  853
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      793
                                                         121
                                                                                                                               61
                                                                                                                                                                                                    ب
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            904
AGENCOURT_7946518 NIH_MGC_72
5', mRNA sequence.
BU182537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Bmail: cgapbs-r@mail.nih.gov
Tissue Procurement: ATCC/DCTD/DTP
CDNA Library Preparation: Life Technologies, Inc.
cDNA Library Preparation: Life Technologies, Inc.
cDNA Library Arrayed by: The I.M.A.G.E. Consortium
DNA Sequencing by: Agencourt Bioscience Corporation
Clone distribution: MGC clone distribution informati
found through the I.M.A.G.E. Consortium/Linl at:
http://image.llnl.gov
Plate: LLAM13486 row: 1 column: 19
High quality sequence stop: 598.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryota, Metazoa, Chordata, Craniata, Vertebrata, Euteleostomi, Mammalia, Eutheria, Primates, Catarrhini, Hominidae, Homo.

1 (bases 1 to 904)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BU182537.1 GI:22696521
EST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Contact: Robert Strausberg,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Unpublished
                                                                                                                                                    GGTGACCAGCTTTGCCGCCCGGCGGTATGGGGTCTCCCACCCGGACGCAGGGGCAGGGGCAGCGTG
                                                                                                                                                                                                    CTATTCCCTCATGGCTGAGCTGGGCGCGAAAGGACCCAGTGCCAGATTTGGCAGCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCTCACATCTGCTCCCTCCCTGGCCACCAGCCCCTTTCGCTACGACCTGCTGGACCT
TAGCCCGCTGGTCAGGCGGCCGTCCCTACAGATGAATACCAGCATCTGGTACAACCGATC
                                                                                                                                                                                                                           CTATTCCCTCATGGCTGAGCTGGGCTGGCGAAAGGACCCAGTGCCAGATTTGGCAGCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CACTCGGCAGGCAGTGCAGGAGCTGGTCAGCTTGTACTATGAGGAGGCCAAGAAGCGCCCTA 1849
                                                                                           GAGGCTACTGCTCCGGAGTGTGTACAACTGCTCCGGGGAGGCCTGCAGGGGGCCACAATCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCTGAGCAAGGAGCTGGCCTCCCTGNTGAAGGCTGGAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCTGAGCAAGGAGCTGGCCTCCCTGTTGAGGGCTGGAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CACTCGGCAGGCAGTGCAGGAGCTGGTCAGCTTGTACTATGAGGGAGCAAGAAGCGCCTA
                                                         GAGGCTACTGCTCCGGAGTGTGTACAACTGCTCCGGGGAGGCCTGCAGGGGGCCACAATCG
                                                                                                                               GGTGACCAGCTTTGCCGCCCGGCGGTATGGGGTCTCCCACCCGGACGCAGGGGGCAGCGTG
                                                                                                                                                                                                                                                                                                                                                                 171
                                                                                                                                                                                                                                                                       31.1%;
ilarity 96.1%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                quality sequence stop:
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                         /clone="IMAGE:6151074"
/tissue_type="melanotic melanoma"
/lab host="pH10B (phage-resistant)"
/clone_lib="NIH MGC_72"
/note="Organ: Skin; Vector: pCMV-SPORT6; Site_1: Not1;
Site_2: Sall; Cloned unidirectionally. Primer: Oligo careage insert size 2 kb. Library constructed by Life Technologies."

Average insert size 2 kb. Library constructed by Life Technologies."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           _type="mRNA"
                                                                                                                                                                                                                                                                           o
;
                                                                                                                                                                                                                                                                         Score 800.2; DB 13
Pred. No. 3.9e-140;
0; Mismatches 28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ph.D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ното
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  mRNA linear E
sapiens cDNA clone
                                                                                                                                                                                                                                                                                                             DB 13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             952
                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                           Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            information
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Collection (MGC)
                                                                                                                                                                                                                                                                                                               904;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (LLNL)
                                                                                                                                                                                                                                                                           7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EST 04-SEP-2002
IMAGE:6151074
                                                                                                                                                                                                                                                                                                                                                                                                   Oligo dT.
by Life
                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            þe
                          1702
                                                                                               1642
                                                                                                                                                                    1582
                                                                                                                                                                                                                                          1522
                                                              180
                                                                                                                                 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        852
                                                                                                                                                                                                      60
```

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 3
BI667002
LOCUS
                                                                                                                                                                                                                                                                                                                                                                 SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     뭥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                뫄
                                                                                                                                                                                                                                                                                                                                           ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2063
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1943
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1883
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1823
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1703
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                181
Email: cgapbs-r@mail.nih.gov
Tissue Procurement: Miklos Palkovits, M.D., Ph.D.
cDNA Library Preparation: Michael J. Brownstein (NHGRI)
Toshiyuki and Piero Carninci (RIKEN)
cDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLN
DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information
found through the I.M.A.G.E. Consortium/LLNL at:
http://image.llnl.gov
                                                                                                                                                                                                                                                                       Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; 1 (bases 1 to 808)
                                                                                                                                                                                                                                                                                                                                                                                                                                                         BI667002 sub up "
603291867F1 NIH_MGC_96 Homo sapiens
                                                                                                                                                                                                                            1 (bases 1 to 808)
NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian
                                                                                                                                                                                                                                                                                                                                                                                                          BI667002.1 GI:15581235
                                                                                                                                                                                                                                                                                                                                                                                                                                BI667002
                                                                                                                                                                                                                                                                                                                                                                                                                                                  mRNA sequence.
                                                                                                                                                                                                               Unpublished
                                                                                                                                                                                                                                                                                                                                        Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TATTA--CCCCGGCTGGGTGGCCGG---CTCTTGGTGATAGATTCGCCACCACTGGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GETACCCCAGCCAGCCGAGGAGAGACACTCT-GGACCTGGCCAAGAAGATCTTCCTCAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TATTACCCCCCGGCTGGGCCCGGCTCCTTGGGGAAAAATTCGCCACCACCTGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTGGCGGCTTTTTCCTGGAGGCGCTGGTTGACAGTGTGGCCCAGGGCATCCCTTTCCAACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CATCCTGGACTATGCCAACAAGCAGCTGGCGGGGTTGGTGGCCAACTACTACACCCCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGCCGÁTTTCTACGAGCAGAACAGCCGCTACCAGCTGACCTTGTGGGGGGCCAGAAGGCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGCCGATTTCTACGAGCAGAACAGCCGCTACCAGCTGACCTTGTGGGGGCCAGAAGGCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GTACTATGAGGAGGCAAGAAGCGCCTACCTGAGCAAGGAGCTGGCCTCCCTGTTGAGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGATGTGTTTGAGGCCTGGCGGCCGCTGCTGCTCACATCTGCTCCCTGGCCACCAGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CATCCTGGACTATGCCAACAAGCAGCTGGCCGGGGTTGGTGGCCAACTACTACACCCCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGATGTGTTTGAGGCCTGCGGGCTGCTGCTCACATCTGCTCTCTCCCTGGCCACCAGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGGAGGCGTCCTGGCCTATGAGCTGCTGCCGGCACTGGACGAGGTGCTGGCTAGTGACAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            тесьностествесств теместестессе сельнось стананти тементельности при те
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTACTATGAGGAGGCAAGAAGCGCCTACCTGAGCAAGGAGCTGGCCTCCCTGTTGAGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGCCTTCCGCTACGACCTGCACCTCACTCGGCAGGCAGTGCAGGAGCTGGTCAGCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TAGCCCGCTGGTCAGGCGGCCGTCCCTACAGATGAATACCAGCATCTGGTACAACCGATC
                                                                                                                                                                                                                                                                                                                                                                 sapiens (human)
                                                                                                                                                                                          Robert Strausberg, Ph.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  mRNA linear EST 12-SEP-2001 cDNA clone IMAGE:5311121 5',
                                                                                                                                                                                                                                     Gene
                                                                                                                                                                                                                                     Collection
                                                                                                                              (NHGRI),
                                                                                                                                                                                                                                                                                                  Euteleostomi; Homo.
                                                                                                                                                                                                                                     (MGC)
                                                                                                                                Shiraki
                                               þe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2062
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1882
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            240
                  Ş
                                                                 吊
                                                                                                     S
                                                                                                                                       밁
                                                                                                                                                                               S
                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                  맑
                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ß
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BASE C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    멼
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local S
Matches 804
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             source
                                                                 603
                                                                                                                                                    543
                                                                                                                                                                                          627
                        747
                                                                                                                                                                                                                                     483
                                                                                                                                                                                                                                                                            567
                                                                                                                                                                                                                                                                                                                      423
                                                                                                                                                                                                                                                                                                                                                               507
                                                                                                                                                                                                                                                                                                                                                                                                          363
                                                                                                                                                                                                                                                                                                                                                                                                                                                447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        804;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       w
CCCTCCTGGCACATCAAGCAGCTTTACCTGCAGCACCGGGTCCTGGACCAGATGCGCTCC
```

```
Plate:
High qu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                       CCTGCCTTCCTGGCCTGGGGGGGAATGGGCAACCTGCACACCTGGGATGGCCCCCTGCCC
                                                                                                                                                                  CAGCGGGTGTACCTGGCCTTGGGCCTGACCCAGGCAGAGATCAATGAGTTCTTTACTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCCGTGCCGGGGAGCTGACCGAGGCCACGCCCAACAGGTACCGCTATTACCAGAATGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TTCTGTGGCTGCCACGTGGCCTGGTCCGGCTCTCAGCTGCGCCTGCCGCCGCCACTGCCA 446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTGGCCGGCTGGTGGGGCCAGGCCCCGCGGCGGCCGACTTCTCCGTGTCGGTGGAGCGCGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CAGCGGGTGTACCTGGCCTTGGGCCTGACCCAGGCAGAGATCAATGAGTTCTTTACTGGT
                                                                                                                                                                                                                             TGGATGGCGCTGAATGGCATCAACCTGGCACTGGCCTGGAGCGGCCAGGAGGCCATCTGG
                                                                                                                                                                                                                                                                      TGGATGGCGCTGAATGGCATCAACCTGGCACTGGCCTGGAGCGGCCAGGAGGCCATCTGG
                                                                                                                                                                                                                                                                                                                                                                    TGCACGCAAAGCTACTCCTTCGTGTGGTGGGACTGGGCCCGCTGGGAGCGAGAGATAGAC
                                                                                                                                                                                                                                                                                                                                                                                                                  GCCGTGCCGGGGGAGCTGACCGAGGCCAACAGGTACCGCTATTACCAGAATGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TTCTGTGGCTGCCACGTGGCCTGGTCCGGCTCTCAGCTGCGCCTGCCGCGGCCACTGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGGGTGCGCGCTCCACGGGCGTGGCGGCGCCGCGGGGGCTGCACCGCTACCTGCGCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGGGTGCGCGCTCCACGGGCGTGGCGGCCGCCGGGGGCTGCACCGCTACCTGCGCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTGGCCCGGCTGCTGGGGCCAGGCCCCGCGGCCGACTTCTCCGTGTCGGTGGAGCGCGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGGAGGACTGAGACCATGGAGGCGGTGGCCGCGGCGGCGGGGGGGTCCTTCTCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGCAGGACTGAGACCATGGAGGCGGTGGCGGTGGCCGCGGCGGTGGGGGGTCCTTCTCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 quality sequence stop: (
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LLAM11788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /clone lib="NIH_MGC_96"
/note="Torgan: brain; Vector: pBluescriptR (modified pBluescript KS+); Site 1: BamHI; Site 2: SalI-XhOI (gtcgag pBluescript KS+); Site 1: BamHI; Site 2: SalI-XhOI (gtcgag ); Oligo-dT primed using primer 5'-TTTTTTTTTTTTTTTTTTVN-3', size-selected for average insert size 2.3 kb and normalized to ROT 5. This is a primary library enriched for full-length clones and constructed using the Cap-trapper method (Carninci, in preparation). Library constructed by M. Brownstein (NIMH/NHGRI, National Institutes of Health). Note: this is a NIH_MGC Library."

a 266 c 303 g 133 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /clone="IMAGE:5311121"
/tissue_type="hypothalamus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               organism="Homo sapiens"

mol_type="mRNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           30.7%;
99.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     : WOT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 791.8; DB 12
Pred. No. 1.5e-138;
0; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     f column: 18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   808;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
806
                                                                                                                                                                                                                                                                         626
                                                                                                                                                                                                                                                                                                                                                                                                                                                               905
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         146
                                            661
                                                                                        746
                                                                                                                                       602
                                                                                                                                                                                   989
                                                                                                                                                                                                                               542
                                                                                                                                                                                                                                                                                                                       482
                                                                                                                                                                                                                                                                                                                                                                      566
                                                                                                                                                                                                                                                                                                                                                                                                                422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            62
```

```
В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
AUTHORS
TITLE
                                 Ş
                                                                                                                       Ś
                                                                                                                                                                    밁
                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 4
BQ893829
                                                                                                                                                                                                                                                                                                                                                   BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ş
                                                                                                                                                                                                                                                      Query Match
Best Local Sim:
Matches 893;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                             1114
                                                                                                                       1174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      662
                                                                                                                                                                    13
                                                                            73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryofa; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

1 (bases 1 to 925)

NIH-MGC http://mgc.nci.nih.gov/.

National Institutes of Health, Mammalian Gene Collection (MGC)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CDNA Library Preparation: Rubin Laboratory CDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL) DNA Sequencing by: Agencourt Bioscience Corporation Clone distribution: MGC clone distribution information can found through the I.M.A.G.E. Consortium/LLNL at: http://image.llnl.gov
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Email: cgapbs-r@mail.nih.gov
Tissue Procurement: ATCC
cDNA Library Preparation: R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BQ893829
BQ893829.1 GI:22285843
EST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Plate: LLCM2533 row: g column: High quality sequence stop: 668.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Contact: Robert Strausberg, Ph.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       925
AGENCOURT_8728368 NIH_MGC_47
5', mRNA Bequence
                                                                                                                                                                                                                                                                                Similarity
  TCCTGGTTCTGGACCTGTTTGCTGAGAGCCAGCCTGTGTATACCCGCACTGCCTTCC
                                                                                                                  TTCGGCATGACCCCAGTGCTGCCTGCATTCGCGGGGCATGTTCCCCGAGGCTGTCACCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GTGTTCCCTCAGGTCAATGTCCCGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTGTTCCCTCAGGTCAATGTCACGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCCTCCTGGCACATCAAGCAGCTTTACCTGCAGCACCGGGTCCTGGACCAGATGCGCTCC
                                                                                                                                                                                                                                                                                                                                                                         164
                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                               /clone="IMAGE:6339115"
/tissue_type="neuroblastoma, cell line"
/clone=lib="NIH MGC 47"
/clone=lib="NIH MGC 47"
/clone="Organ: brain, Vector: pOTB7; Site_1: XhoI; Site_2:
/clone="Organ: brain, Vector: pOTB7; Site_1: XhoI; Site_2:
/clone="Organ: brain, Vector: poTB7; Site_1: XhoI;
/clone="IDHA made by oligo-dT priming_DT ectomally clones
/clone="Organ: brain, Vector: pOTB7; Site_1: XhoI; Site_2:
/clone="Organ: brain, Vector: poTB7; Site_1: XhoI; Site_2: XhoI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /organism="Homo sapiens"
/mol_type="mRNA"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 location/Qualifiers
                                                                                                                                                                                                                                                                           30.7%;
93.0%;
                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                   Score 789.6; DB 13;
Pred. No. 3.8e-138;
0; Mismatches 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            bp mRNA linear EST 16-AUG-2002 Homo sapiens cDNA clone IMAGE:6339115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             893
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     808
                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                   925;
                                                                                                                                                                                                                                                      58;
                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            þe
                                                                                                                  1233
                            1293
                                                                       132
                                                                                                                                                                72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 866
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              721
                                                                                                                                                                                                                                                   4
                                             REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                            RESULT 5
BG760547
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 श्च
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                            COMMENT
                                                                                                                                                                                                                                                                           ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                . B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             뭥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                KEYWORDS
                                                                                                                                                                                                                                                        VERSION
                                                                                                                                                                                                                                                                                                                      DEFINITION
                                                                                                                                                                                     ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2012
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1893
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1833
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1774
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1714
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             793
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 733
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              133
Unpublished
Contact: Robert Strausberg, Ph.D
Email: cgapbs-r@mail.nih.gov
                                                              Bukaryota; Metazoa; Chordata; C:
Mammalia; Eutheria; Primates; C:
1 (bases 1 to 989)
NIH-MGC http://mgc.nci.nih.gov/
National Institutes of Health, N
                                                                                                                                                                                Homo sapiens
                                                                                                                                                                                                                                                                         mRNA sequence.
BG760547
                                                                                                                                                                                                                                                                                                               BG760547
602716985F1 NIH_MGC_49
                                                                                                                                                                                                                                BG760547.1
EST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTACGAACAGAACAGCCGCTACCAGCTGAACTTGTGGGGGGGCCAGAAGGCAACATCCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TCAGGCGGCCGTCCCTACAGATGAATACCAGCATCTGGTACAACCGATCTGATGTTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CTACGAGCAGAACAGCCGCTACCAGCTGACCTTGT-GGGGGCCAGAAGGCAACATCCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTGGCCTATGAGCTGCTGCCGGCACTGGACGAGGTGCTGGCTAGTGACAGCCGCTTCTTG 1952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GAGGCAAGAAGCGCCTACCTGAGCAAGGAGCTGGCCTCCCTGTTGAGGGCTGGAGGCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GAGGCAAGAAGCGCCTACCTGAGCAAGGAGCTGGCCTCCCTGTTGAGGGCTGGAGGCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACGACCTGCTGGACCCTCACTCGGCAGGCAGTGCAGGAGCTGGTCAGCTTGTACTATGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACGACCTGCTGGA-CCTCACTCGGCAGGCAGTGCAGGAGCTGGTCAGCTTGTACTATGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AGGCCTGGCGGCTGCTCACATCTGCTCCCTCCCTGGCCACCAGCCCCGCCTTCCGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TCAGGCGGCCGTCCCTACAGATGAATACCAGCATCTGGTACAACCGATCTGATGTGTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TCCGGAGTGTACAACTGCTCCGGGGAGGCCTGCAGGGGCCACAATCGTAGCCCGCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCCGGAGTGTGTACAACTGCTCCGGGGAGGCCTGCAGGGGCCACAATCGTAGCCCCGCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTGCCGCCCGGCGGTATGGGGTCTCCCACCCGGACGCAGGGGCAGCGTGGAGGCTACTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GAGCCCTAGAGGCTGTGAACGGAGGCCCAGAAGCTGCCCGCCTCTTCCCCAACTCCACCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAGCCCTAGAGGCTGTGAACGGAGGCCCAGAAGCTGCCCGCCTCTTCCCCAACTCCACCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TCCTGGTTCTGGACCTGTTTGCTGAGAGCCAGCCTGTGTATACCCGCACTGCCTCCTTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Tegerteagertegereaaageacecagreceagartregeagecerecereaceacer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AGGGCCAGCCCTTCATCTGGTGCATGCTGCACAACTTTGGGGGGAAACCATGGTCTTTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AGGGCCAGCCCTTCATCTGGTGCATGCTGCACAACTTTGGGGGGAAACCATGGTCTTTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGGCTGAGCTGGGGGAAAAGGACCCAGTGCCAGATTTGGCAGCCTGGGTGACCAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGGTAGGCACGGGCATGGCCCCCGAGGGCATCAGCCAGAACGAAGTGGTCTATTCCCTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -TGCCTAGAGCAGGCCCGAGCAACGCAAGTCAGTGAGGCCCGAGGCCGATTT
                                                                                                                                                                                                                                                   GI:14071200
                                                                                                                                                                                                        (human
                                                                                                                                     Chordata; Craniata; Vertebrata; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                  3 owoH
                                                                                                                                                                                                                                                                                                                    sapiens
                                                                                                                                                                                                                                                                                                                                       ďď
                                                                     Mammalian
                                                                                                                                                                                                                                                                                                                  mRNA
s cDNA
                                                                     Gene
                                                                                                                                                                                                                                                                                                                  linear EST 15-MAY-2001 clone IMAGE:4840436 5',
                                                                  Collection (MGC)
```

806

917 2070 857 1832

732

1892

792

1773

612

672

1713

552 1653 492 1593 432

1533

1413

252

192

1473

312

```
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             당
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BASE COUNT
                                                         δ
                                                                                                                                                               밁
                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                         片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches 884;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            181
                                                                                                                                                                                                                                                                                                                                                                                                                  536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    416
540
                                                                               999
                                                                                                                                                               480
                                                                                                                                                                                                                                                                                                                                  420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      http://image.llnl.gov
Plate: LLCM1671 row:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          found through the I.M.A.G.E. Consortium/LLNL at:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  cDNA Library Preparation: Ling Hong/Rubin Laboratory cDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL) DNA Sequencing by: Incyte Genomics, Inc. Clone distribution: MGC clone distribution information can
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGCCGACTTCTCCGTGTCGGTGGAGCGCGCTCTGGCTGCCAAGCCGGGCTTGGACACCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGCCGACTTCTCCGTGTCGGTGGAGCGCGCTCTGGCTGCCAAGCCGGGCTTGGACACCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   dacccada a decede contra de decede de contra de decede de contra de decede de contra de decede d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              евсссевеневсевсевссетвеневсенее политической в поставление поставление в поставление поставление поставление по
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGTGGCCGCGGCGGGGGGTCCTTCTCCTGGCCGGGGGCCGGGGGCGCGGCAGGCGACGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTCTCAGCTGCGCCTGCCGCGGCCACTGCCAGCCGTGCCGGGGGAGCTGACCGAGGCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGCCGCGGGGCTGCACCG-TACCTGCGCGACTTCTGTGGCTGCCACGTGGCCTGGTCCGG
    GGACTGGGCCCGCTGGGAGGCGAGAGATAGACTGGATGGCGCTGAATGGCATCAACCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                      GGACTGGGCCCGCTGGGAGAGAGAGATAGACTGGATGGCGCTGAATGGCATCAACCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCCCAACAGGTACCGCTATTACCAGAATGTGTGCACGCAAAGCTACTCCTTCGTGTGGTG
                                                                                                                                                                   <u>ACTGGCCTGGAGCGGCCAGGAGGCCATCTGGCAGCGGGTGTACCTGGCCTTGGGCCTGAC</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         e: LLCM1671 row: j column:
quality sequence stop: 859.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               //db xref="taxon:9606"
/db xref="taxon:9606"
/clone="mAGE:4840435"
/clone="mAGE:4840436"
/tissue_type="melanotic melanoma, high MDR (cell line)"
/tab host="pHIDB (phage-resistant)"
/clone=lib="NIH MGC 49"
/clone=lib="NIH MGC 49"
/clone="Crygan: skin; Vector: pOTB7; Site 1: XhoI; Site 2:
/core="Crygan: skin; Vector: pOTB7; Site 1: XhoI; Site 2:
/core="Crygan: skin; Vector: pOTB7; Site 1: XhoI; Site 2:
/core="Crygan: skin; Vector: pOTB7; Site 1: XhoI; Site 2:
/core="Crygan: skin; Vector: pOTB7; Site 1: XhoI; Site 2:
/core="Crygan: skin; Vector: poTB7; Site 1: XhoI; Site 2:
/core="Crygan: skin; Vector: poTB7; Site 1: XhoI; Site 2:
/core="Crygan: skin; Vector: poTB7; Site 1: XhoI; Site 2:
/core="Crygan: skin; Vector: poTB7; Site 1: XhoI; Site 2:
/core="Crygan: skin; Vector: poTB7; Site 1: XhoI; Site 2:
/core="Crygan: skin; Vector: poTB7; Site 1: XhoI; Site 2:
/core="Crygan: skin; Vector: poTB7; Site 1: XhoI; Site 2:
/core="Crygan: skin; Vector: poTB7; Site 1: XhoI; Site 2:
/core="Crygan: skin; Vector: poTB7; Site 1: XhoI; Site 2:
/core="Crygan: skin; Vector: poTB7; Site 1: XhoI; Site 2:
/core="Crygan: skin; Vector: poTB7; Site 1: XhoI; Site 2:
/core="Crygan: poTB7; Site 1: XhoI; Site 2: XhoI; Site 2:
/core="Crygan: poTB7; Site 1: XhoI; Site 2: XhoI; Site 2:
/core="Crygan: poTB7; Site 1: XhoI; Site 2: XhoI; Si
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Procurement: ATCC/DCTD/DTP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Library.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               organism="Homo sapiens"
/mol_type="mRNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              29.2%;
93.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 753; DB 12;
Pred. No. 2.8e-131;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             340 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          180 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          45;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 989;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                235
                                                                                            715
                                                                                                                                                                                                                                                                                                                                                    479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            120
                                                                                                                                                                                539
                                                                                                                                                                                                                                                                655
                                                                                                                                                                                                                                                                                                                                                                                                                                   595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       359
                 599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9
```

```
RESULT 6
BQ001701/c
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        당
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      947
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    890
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BQ001701 770 bp mRNA
UI-H-DHI-awr-h-24-0-UI.S1 NCI_CGAP_DH1
IMAGE:5893319 3', mRNA sequence.
BQ001701
BQ001701.1 GI:19726601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Butheria; Primates; Catarrhini; Hominidae; Homo.

1 (bases 1 to 770)

NCI-CGAP http://www.ncbi.nlm.nih.gov/ncicgap.
National Cancer Institute, Cancer Genome Anatomy Project (CGAP), Tumor Gene Index
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Email: cgapbs-r@mail.nih.gov
Tissue Procurement: Dr. Jose Mercuende
CDNA Library preparation: Dr. M. Bento Soares, University of Iowa
CDNA Library Arrayed by: Dr. M. Bento Soares, University of Iowa
CDNA Library Arrayed by: Dr. M. Bento Soares, University of Iowa
DNA Sequencing by: Dr. M. Bento Soares, University of Iowa
Clone Distribution: Clone distribution information can be found
through the I.M.A.G.B. Consortium/LLNL at: http://image.llnl.gov
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Seq primer: M13 POLYA=Yes.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Contact: Robert Strausberg, Ph.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens (human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATTCGCGGGGCAT--GTTCCCGAGGCTGTCACCAGGTGTTCCCTCAGGTCAAT-GTCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gcaecacceeerccreeaccaearec-ecrecrreesca--reaccccaerecrecrec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CAACCTGCACACCTGGGATGGCCCCCTCCTCGCACATCAAGCACCTTTACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GAAGTTGGGGCAAAGACCACATTTATTGGGGCGACACTTTCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GAGTIT---GGCACAGACCACATCTATGGGGCCGACACTTTCAA 1045
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gaagargggcagrrggggccacrrr---aacrgrrccracrccrgcrccrrccrrccrggc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TCCGGAAGACCCCATATTCCCCCATCATC-GGGAGCCTCTTCCTGCG-AGAGCTGATCAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       deladeladed de la companya del companya de la companya de la companya del companya de la companya del companya de la companya de la companya de la companya del companya de la companya del companya de la companya del companya de la 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TCCGGAAAGACCCATATTCCCCACATTCGGGGAACCTCTTCCTGAGAAGAGGTGATTCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATTCGCGGGGCATTGTTTCCCGAGGCTGTCACCAGGGTGTTCCCCTCAGGTCAATGGTCAC
/note="Organ: Lung; Vector: pT773-Pac (Pharmacia) with a /note="Organ: Lung; Vector: pT773-Pac (Pharmacia) with a modified polylinker; Site_1: EcoR I; Site_2: Not I; NCI (GAP DH1 is a normalized cDNA library containing the following tissue(s): VS-8 Cell line from Metastatic Chondrosarcoma in Lung. The library was constructed according to Bonaldo, Lennon and Soares, Genome Research, 6:791-806, 1996. First strand cDNA synthesis was primed with an oligo-dT primer containing a Not I site. Double stranded cDNA was ligated to an EcoR I adaptor, digested with Not I, and cloned directionally into pT7T3-Pac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /organism="Homo sapiens"
/mol_type="mRNA"
/db_xref="taxon:9606"
/clone="IMAGE:5893319"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                 crone
                                                                                                                                                                                                                                                                                                                                                                                                                                              /tissue type="Metastatic Chondrosarcoma"
/dev_stage="Adult"
/lab_host="DH108 (Life Technologies)"
                                                                                                                                                                                                                                                                                                                                                                                                        lib="NCI_CGAP_DH1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TIRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         linear EST 17-JUN-2002
sapiens cDNA clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     946
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      779
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            832
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             659
```

```
RESULT 7
BQ014565/c
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
ORIGIN
                                                                      DEFINITION
       ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Simi
Matches 763;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2088
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2028
                                                                                                                                                                                                                                                                                                                                               2506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1908
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        530
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  650
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             590
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              710
                                                                                                                                                                                                                                                                                                                                                                                                                     110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             170
BQ014565 757 bp mRNA linear EST 26-MAR-2002 UI-H-ED1-axt-k-24-0-UI.s1 NCI CGAP ED1 Homo sapiens cDNA clone IMAGE:5833487 3', mRNA sequence.

BQ014565
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCCCAGAGCTGGACAGACATCACAGGATAACCCAGGCCTGGGAGGAGGCCCCACGGCCTG 2447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GITGACAGTGTGGCCCAGGGCATCCCTTTCCAACAGCACCAGTTTGACAAAAATGTCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGCTACCAGCTGACCTTGTGGGGGCCAGAAGGCAACATCCTGGACTATGCCAACAAGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GAGCAGGCCCGAGCAGCGGCAGTCAGTGAGGCCGAGGCCGATTTCTACGAGCAGAACAGC 2027
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTGCCGGCACTGGACGAGGTGCTGGCTAGTGACAGCCGCTTCTTGCTGGGCAGCTGGCTA 1967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TACCTGAGCAAGGAGCTGCCCTCCCTGTTGAGGGCTGGAGGCGTCCTGGCCTATGAGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TACCTGAGCAAGGAGCTGGCCTCCCTGTTGAGGGCTGGAGGCGTCCTGGCCTATGAGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTCACTCGGCAGGCAGTGCAGGAGCTGGTCAGCTTGTACTATGAGGAGGCAAGAAGCGCC 711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTCACTCGGCAGGCAGTGCAGGAGCTGGTCAGCTTGTACTATGAGGAGGCAAGAAGCGCC 1847
                                                                                                                                                                                                                                                                                                                         CTGGTGGGGTCTGACCTGGGGGGATTGGAGGGAAATGACCTGCCCTCCACCACCACCC--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGGTGATAGATTCGCCACCACCGGGCCTTGTTTTCCGCTAATTCCAGGGCAGATTCCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACTGTGGACCTGGCCAAGAAGATCTTCCTCAAATATTACCCCGGCTGGGTGGCCGGCTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GTTGACAGTGTGGCCCAGGGCATCCCTTTCCAACAGCACCAGTTTGACAAAAATGTCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTGGCGGGGTTGGTGGCCAACTACTACACCCCTCGCTGGCGGCTTTTTCCTGGAGGCGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTGGCGGGTTGGTGGCCAACTACTACACCCCTCGCTGGCGGCTTTTCCTGGAGGCGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CGCTACCAGCTGACCTTGTGGGGGCCAGAAGGCAACATCCTGGACTATGCCAACAAGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTGCCGGCACTGGACGAGGTGCTGGCTAGTGACAGCCGCTTCTTGCTGGGCAGCTGGCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCCCAGAGCTGGACAGACATCACAGGATAACCCCAGGCCTGGGAGGAGGACGCCCCACGGCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TEGTGATAGATTCGCCACCACTEGGCCTTGTTTTCCGCTAATTCCAGGGCAGATTCCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACTGTGGACCTGGCCAAGAAGATCTTCCTCAAATATTACCCCGGCTGGGTGGCCGGCTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 b
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  vector. The oligonucleotide used to prime the synthesis of first-strand cDNA contains a library tag sequence that is located between the Not I site and the (dT)18 tail. The sequence tag for this library is AGATCATTGC.

TAG_LIB=UI-H-H1
TAG_TISSUE=lung
TAG_SEC-AGATCATTGC"

TAG_SEC-AGATCATTGC"

TAG_SEC-AGATCATTGCT

TAG_TISSUE=1 lung
TAG_TISSUE=1 lung
TAG_SEC-AGATCATTGCT

TAG_TISSUE=1 lung
TAG_TISSUE=1 lung
TAG_TISSUE=1 lung
TAG_SEC-AGATCATTGCT

TAG_TISSUE=1 lung
TAG_TISSUE=1 lun
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 29.1%;
99.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 748.6;
Pred. No. 1.9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .9e-130;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 멂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ა
--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2087
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 531
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  651
                                                                                                                                                                                                                                                                                                                                                                                                                            51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                        δ
                                                                                                          밁
                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local S
Matches 749
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                                                                                                                                                                                                                                                                                                                                                                                                                                                              1863
                                                                                                                                                                                                                                                      637
                                                                                                                                                                                                                                                                                                                                                                                           697
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     al Similarity
749; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cDNA Library preparation: Dr. M. Bento Soares, University of Iowa CDNA Library Arrayed by: Dr. M. Bento Soares, University of Iowa DNA Sequencing by: Dr. M. Bento Soares, University of Iowa Clone Distribution: Clone distribution information can be found through the I.M.A.G.E. Consortium/LLNL at: http://image.llnl.gov
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Contact: Robert Strausberg, Ph.D.
Email: cgapbs-r@mail.nih.gov
Tissue Procurement: Dr. Jose Mercuende
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mammalia; Butheria; Primates; Catarrhini; Hominid
1 (bases 1 to 757)
NCI-CGAP http://www.ncbi.nlm.nih.gov/ncicgap
National Cancer Institute, Cancer Genome Anatomy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BQ014565.1
EST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Tumor Gene Index
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Metazoa;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Homo sapiens
                                                                                                                                                                                                                                                                                                                 GAGGTGCTGGCTAGTGACAGCCGCTTCTTGCTGGGCAGCTGGCTAGAGCAGGCCCGAGCA 1982
                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTGGCCTCCCTGTTGAGGGCTGGAGGCGTCCTGGCCTATGAGCTGCTGCCGGCACTGGAC 1922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTGCAGGAGCTGGTCAGCTTGTACTATGAGGAGGCAAGAAGCGCCTACCTGAGCAAGGAG
   TTGTGGGGGGCCAGAAGGCAACCTCGGACTATGCCAACAAGCAGCTGGCGGGGTTGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTGCAGGAGCTGGTCAGCTTGTACTATGAGGAGGCAAGAAGCGCNTACNTGAGCAAGGAG
                                                                                                                  GCGGCAGTCAGTGAGGCCGAGGCCGATTTNTACGAGCAGAACAGCCGNTACCAGCTGACC
                                                                                                                                                              GCGGCAGTCAGTGAGGCCGAGGCCGATTTCTACGAGCAGAACAGCCGCTACCAGCTGACC
                                                                                                                                                                                                                                                      GAGGTGCTGGCTAGTGACAGCCGCTTCTTGCTGGGCAGCTGGCTAGAGCAGGCCCGAGCA
                                                                                                                                                                                                                                                                                                                                                                                       CTGCCCTCCCTGTTGAGGGCTGGAGGCGTCCTGGCCTATGAGCTGCTGCCGGCACTGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               primer: M13 FORWARD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   / LIBBUE_TYPE - LIBBUE COMES
// Act targes "Adult"
// Lab_nost = "DH10B (Life Technologies)"
// Clone lib="NCI (GAP_ED1"
// Lennon and Soares, Genome Research, 6:791-806, 1996.
// Lib="Lib="Lib"
// Lib="Lib"
// Lib"
// Lib"
// Lib="Lib"
// Lib"
// Lib"
// Lib="Lib"
// Lib"
// Lib
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /tissue_type="Chondrosarcoma"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /mol_type="mRNA"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       organism="Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   clone="IMAGE:5833487"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GI:19739466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              _SEQ=CGTCAAGGCT"
230 c 207 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TISSUE=chondrosarcoma
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      29.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Chordata; Craniata; Vertebrata; Euteleostomi; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 748.4; DB 14;
Pred. No. 2.1e-130;
Mismatches 5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      rt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1862
                                                       2102
                                                                                                                                                                                        2042
                                                                                                                                                                                                                                                              578
                                                                                                                                                                                                                                                                                                                                                                                                   638
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           869
                                                                                                                         518
```

Š

В Ś 밁 Ş 맑 Ş

B Ś

á

Š 밁

0

밁 Ş 밁 Ś 밁 . 8 밁 Ş 밁

밁

В

S 맑

```
RESULT 8
BM976832/c
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                        FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL
MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM
                              source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2523
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   UI-CF-EN1-adb-o-24-0-UI.S1 UI-CF-EN1 Homo sapiens cDNA clone UI-CF-EN1-adb-o-24-0-UI 3', mxNA sequence.
                                                                                                                                                       Email: paul-mccray@uiowa.edu
Tissue Procurement: Dr. M. J. Welsh, University of Iowa
cDNA Library preparation: Dr. M. Bento Soares, University of Iowa
cDNA Library Arrayed by: Dr. M. Bento Soares, University of Iowa
DNA Sequencing by: Dr. M. Bento Soares, University of Iowa
Clone Distribution: Researchers may obtain clones from Research
Genetics (www.resgen.com) or from Open Biosystems
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mammalia, Eutheria,
1 (bases 1 to 773)
Bonaldo, M.F., Lenno
                                                                              (www.openbiosystems.com)
Seq primer: M13 FORWARD
POLYA=Yes.
                                                                                                                                                                                                                                                                                                                                           2024 University of Iowa Med Labs, Tel: 319 356 4866 Fax: 319 356 7171
                                                                                                                                                                                                                                                                                                                                                                                                                                                           McCray Lab
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Contact: McCray, PB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Genome Res. 6 (9),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            discovery
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Bonaldo,M.F., Lennon,G. and Soares,M.B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eukaryota; Metazoa;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BM976832.1 GI:19594633
                                                                                                                                                                                                                                                                                                                                                                                                                               University of Iowa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GACATCACAGGATAACCCAGGCCTGGGAGGAGGCCCCACGGCCTGCTGGTGGGGGTCTGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCCAACTACTACACCCCTCGCTGGCGGCTTTTTCCTGGAGGCGCTGGTTGACAGTGTGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TACTGTTTTCCTTTCCACTTAAAAAAAAAAAAAAA 2556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CACCACTGGGCCTTGTTTTCCGCTAATTCCAGGGCAGATTCCAGGGCCCAGAGCTGGACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAGAAGATCTTCCTCAAATATTACCCCGGCTGGGTGGCCGGCTCTTGGTGATAGATTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CAGGGCATCCCTTTCCAACAGCACCAGTTTGACAAAAATGTCTTCCAACTGGAGCAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCCAACTACTACACCCCTCGCTGGCGGCTTTTTCCTGGAGGCGCTGGTTGACAGTGTGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTGGGGGGATTGGAGGGAAATGACCTGCCCTCCACCACCACCACCAAAGTGTGGGATTAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAGAAGATCTTCCTCAAATATTACCCCGGCTGGGTGGCCGGCTCTTGGTGATAGATTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTCGTTCTCAGCAAGCAGAGGTACCCCAGCCAGCCGCGAGGAGACACTGTGGACCTGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CAGGGCATCCCTTTCCAACAGCACCAGTTTGACAAAATGTCTTCCAACTGGAGCAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TACTGTTTTCTTTCCACTTAAAAAAAAAAAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTGGGGGGATTGGAGGGAAATGACCTGCCCTCCACCACCACCCAAAGTGTGGGGATTAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GACATCACAGGATAACCCAGGCCTGGGAGGAGGACCCCCACGGCCTGCTGGTGGGGTCTGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TTCGTTCTCAGCAAGCAGAGGTACCCCAGCCAGCCGAGGAGGACACTGTGGACCTGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TTGTGGGGGCCAGAAGGCAACATCCTGGACTATGCCAACAAGCAGCTGGCGGGGTTGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          sapiens (human)
/organism="Homo sapiens"
                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                791-806 (1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Chordata;
Primates;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Craniata; Vertebrata; Euteleostomi; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                      Iowa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             approaches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4
                                                                                                                                                                                                                                                                                                                                                                                                      City,
                                                                                                                                                                                                                                                                                                                                                                                                      IA .52242,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EST 21-FEB-2003
                                                                                                                                                                                                                                                                    of Iowa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     98
                                                                        Ś
                                                                                                                                   닭
                                                                                                                                                                             Ş
                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                             문
                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                        맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             뮹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               멂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches 759;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
                                                                                                                                                                                      2268
                                                                                                                                                                                                                                                                                              2208
                                                                                                                                                                                                                                                                                                                                                                                                      2148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2088
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2028
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1908
                                                                                                                                   293
                                                                                                                                                                                                                                           353
                                                                                                                                                                                                                                                                                                                                                413
                                                                                                                                                                                                                                                                                                                                                                                                                                                           473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTCACTCGCAGCNNAGTGCAGGAGCTGGTCAGCTTGTACTATGAGGAGGCAAGAAGCGCN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTCACTCGGCAGGCAGTGCAGGAGCTGGTCAGCTTGTATGAGGAGGCAAGAAGCGCC
                                                                   TGGTGATAGATTCGCCACCACTGGGCCTTGTTTTCCGCTAATTCCAGGGCAGATTCCAGG
                                                                                                                                                                  ACTGTGGACCTGGCCAAGAAGATCTTCCTCAAATATTACCCCGGCTGGGTGGCCGGCTCT 2327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGCTACCAGCTGACCTTGTGGGGGGCCAGAAGGCAACATCCTGGACTATGCCAACAACAAGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GAGCAGGCCCGAGCAGCAGTCAGTGAGGCCGAGCCGATTTNTACGAGCAGAACAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GAGCAGGCCCGAGCAGCGGCAGTCAGTGAGGCCGAGGCCGATTTCTACGAGCAGAACAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTGCCGGCACTGGACGAGGTGCTGGCTAGTGACAGCCGCTTCTTGCTGGGCAGCTGGCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TACCTGAGCAAGGAGCTGGCCTCCCTGTTGAGGGCTGGAGGCGTCCTGGCCTATGAGCTG
                                                                                                                                                                                                                                           GTTGACAGTGTGGCCCAGGGCATCCCTTTCCAACAGCACCAGTTTGACAAAAATGTCTTC
                                                                                                                                                                                                                                                                                                                                                                                                      GTTGACAGTGTGGCCCAGGGCATCCCTTTCCAACAGCACCAGTTTGACAAAAATGTCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTGGCGGGGTTGGTGGCCAACTACTACACCCCTCGCTGGCGGCTTTTCCTGGAGGCGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTGGCGGGGTTGGTGGCCAACTACTACACCCCCTCGCTGGCGGCTTTTCCTGGAGGCGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTGCCGGCACTGGACGAGGTGCTGGCTAGTGACAGCCGCTTCTTGCTGGGCAGCTGGCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TACCTGAGCAAGGAGCTGCCCTCCCTGNTGAGGGCTGGAGGCGTCCTGGCCTATGAGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Bonaldo, Lennon and Soares, Genome Research, 6:791-806, 1996. First strand cDNA synthesis was primed with an oligo-dT primer containing a Not I site. Double stranded cDNA was ligated to an EcoR I adaptor, digested with Not I, and cloned directionally into pT7T3-Pac vector. The oligonucleotide used to prime the synthesis of first-strand cDNA contains a library tag sequence that is located between the Not I site and the (dT)18 tail. The sequence tag for this library is CTGCTCAGGT.

TAG_TISSUB=Human Lung Epithelial Cell Lines untreated LPS of the LPS 24h
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /dev_stage="Adult"
/lab host="PH10B (Life Technologies) (T1 phage resistant /lab host="PH10B (Life Technologies) (T2 phage resistant /clone lib="U1-CF-EN1"
/note="Organ: Lung; Vector: pT7T3-Pac (Pharmacia) with a modified polylinker; Site 1: EcoR I; Site 2: Not I; OICF-EN1 is a normalized CDNA library containing the following tissue(s): Primary Lung Cystic Fibrosis Epithelial Cells. The library was constructed according to the containing the the co
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TAG_SEQ=CTGCTCAGGT"
232 c 215 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /mol_type="mRNA"
/db_xref="taxon:9606"
/dbone="Ul-CF-EN1-adb-o-24-0-Ul"
/tissue_type="Primary Lung Cystic Fibrosis Epithelial
/tissue_type="Primary Lung Cystic Fibrosis Epithelial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           28.9%;
98.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 745; DB 12;
Pred. No. 9.1e-130;
0; Mismatches 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                П
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ហ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (T1 phage resistant)"
```

1;

1847

714

1967

1907

654

174 2387 234

2267 354 2207

294

2147

414

2087 534 2027 594

8 Ď, Ş 밁 . 19

밁

```
RESULT 9
AUI18592
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
AUTHORS
                                                                                δ
                                                                                                                                                                                                                                                                                                                          BASE COUNT
ORIGIN
                                                                                                                    밁
                                                                                                                                                                                     B,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DEFINITION
                                                                                                                                                                                                                                                         Query Match
Best Local Sim
Matches 760;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2388
                                                                                                                                                                                                                        1014
                                                                                   1134
                    1194
                                                                                                                                                      1074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        173
                                                  121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     53
                                                                                                                      67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AU118592
AU118592
                                                                                                                                                                                     μ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Email: genomics@hri.co.jp
HRI human cDNA project; 5'- & 3'-end one pass sequencing: Helix
Research Institute; CDNA library construction: Department of
Virology, Institute of Medical Science, University of Tokyo, and
Helix Research Institute.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1532-3 Yana, Kisaraz
Tel: 81-438-52-3975
Fax: 81-438-52-3986
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sequence.
AU118592
AU118592.1 GI:10933699
EST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ota
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Helix Research Institute
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Genomics Laboratory
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Yamamoto, J., Wakamatsu, A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Primates;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Homo
                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCCCAGAGCTGGACAGACATCACAGGATAACCCAGGCCTGGGAGGAGGAGGCCCCACGGCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCCCAGAGCTGGACAGACATCACAGGATAACCCAGGCCTGGGAGGAGGCCCCACGGCCTG
                                                                                                                                                                                                                 ACAGACCACATCTATGGGGCCGACACTTTCAATGAGATGCAGCCACCTTCCTCAGAGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTGGTGGGGTCTGACCTGGGGGGATTGGAGGGAAATGACCTGCCCTCCACCACCACCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CAGATCAGGGCTGTGCTGGGAGCTGTGCCCCGTGGCCCTCCTGGTTCTGGACCTGTTT
                                                                                   GCTGTGTGGCTGCTCCAAGGCTGGCTCTTCCAGCAGCAGCCGCAGTTCTGGGGGGCCCGCC
                                                                                                                                             TCCTACCTTGCCGCAGCCACCACTGCCGTCTATGAGGCCATGACTGCAGTGGATACTGAG 1133
                                                                                                                                                                                       ACAGACCACATCTATGGGGCCGACACTTTCAATGAGATGCAGCCACCTTCCTCAGAGCCC
                                                    GOTGTGTGGCTGCTCCAAGGCTGGCTCTTCCAGCACCAGCCGCAGTTCTGGGGGCCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (bases 1 to 788)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      human cDNA project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Nishikawa, T., Suzuki, Y.,
                                                                                                                                                                                                                                                                                                                                         /organism="Homo sapiens"
/mol_type="mRNA"
/db_xref="taxon:9606"
/clone="HEMBA1003940"
/tissue_type="whole embryo, mainly head"
/dev_stage="embryo, 10 weeks"
/clone_lib="HEMBA1"
/note="Vector: pME18SPL3"
/note="Vector: pME18SPL3"
/note="Vector: gME18SPL3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             788 bp mRNA linear F
                                                                                                                                                                                                                                                                                                                                            ያኔ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Takao Isogai
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Kısarazu,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (human)
                                                                                                                                                                                                                                                                         28.98;
                                                                                                                                                                                                                                                          °,
                                                                                                                                                                                                                                                         Score 743; DB 9; 1
Pred. No. 2.2e-129;
0; Mismatches 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Chiba
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Nakamura, Y.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        292-0812,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Craniata; Vertebrata; Euteleostomi; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ishii,S., Saito,K., Kawai,
1ra,Y., Nagai,T., Sugano,S.
                                                                                                                                                                                                                                                                                         Length 788;
                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Kawai,Y.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EST 01-AUG-2002
) 5', mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2556
                                                                                                                                                                                                                                                            ۲,
                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          υ
4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2447
                                                                                       1193
                                                                                                                                                                                                                        1073
                                                      180
                                                                                                                        120
                                                                                                                                                                                         60
                                                                                                                                                                                                                                                                                                                                REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                 SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 10
BG327597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         皮
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                               COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                    KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VERSION
                                                                                       source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1254 GCTGAGAGCCAGCCTGTGTATACCCGCACTGCCTTCCAGGGCCAGCCCTTCATCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           721
                                                                                                    cDNA Library Preparation: Ling Hong/Rubin Laboratory cDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL) DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information can be found through the I.M.A.G.E. Consortium/LLNL at: http://image.llnl.gov plate: LLCM1279 row: 1 column: 21 High quality sequence stop: 783.
Location/Qualifiers
                                                                                                                                                                                                                                                            Contact: Robert Strausberg, Email: cgapbs-r@mail.nih.gov
Tissue Procurement: DCTD/DTP
                                                                                                                                                                                                                                                                                                                          Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

1 (bases 1 to 1097)

NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian Gene Collection (MGC)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BG327597 1097 bp mRNA linear EST 27-FEB-2001
602426586F1 NIH_MGC_14 Homo sapiens cDNA clone IMAGE:4564388 5',
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      mRNA sequence.
BG327597
                                                                                                                                                                                                                                                                                                               Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BG327597.1 GI:13134035
                                                                                                                                                                                                                                                                                                                                                                                                                                    Homo sapiens (human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGAGGCCCAGAAGCTGCCCGCCTCTTCCCCCAACTCCACCATGGTAGGCACGGGCATGGCC 1433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGCATGCTGCACAACTTTGGGGGAAACCATGGTCTTTTTGGAGGCCTAGAGGCTGTGAAC 1373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTCTCCCACCCGGACGCAGGGGCAGCGTGGAGGCTACTGCTCCGGAGTGTGTACAACTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCCGAGGGCATCAGCCAGAACGAAGTGGTCTATTCCCTCATGGCTGAGCTGGGCTGGCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGCATGCTGCACAACTTTGGGGGGAAACCATGGTCTTTTTGGAGCCCTAGAGGCTGTGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gergagagecageergranaceegeaergeereerreeagegeeageeerrearerg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CAGATCAGGGCTGTGCTGGGAGCTGTGCCCCGTGGCCCTCCTGGTTCTGGACCTGTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cacarcrectrectreeecaccaencecetrreegriaceaacreerre
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CACATETGCTCCCTCCCTGGCCACCAGCCCCGCCTTCCGCTACGACCTGCTGG 1785
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATGAATACCAGCATCTGGTACAA-CCGATCTGATGTGTTTTGAGGCCCTGGCGGCTGCTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           тссевевавесствежевевескасматестмессевстветсмевсевссетсестмеме
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTCTCCCACCCGGACGCAGGGCAGCGTGGAGGCTACTGCTCCGGAGTGTGTACAACTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAGGACCCAGTGCCAGATTTGGCAGCCTGGGTGACCAGCTTTGCCGCCCGGCGGTATGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCCGAGGGCATCAGCCAGAACGAAGTGGTCTATTCCCTCATGGCTGAGCTGGGCTGGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GEAGGECCAGAAGETGCCCGCCTTTCCCCCAACTCCACCATGGTAGGCACGGGCATGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATGAATACCAGCATCTGGTACAACCCGATCTGATGTGTTTGANGCCTGGCGGCTGCTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /organism="Homo sapiens"
/mol_type="mRNA"
/db_xref="taxon:9606"
/clonne="INMGE:4564388"
/tissue_type="renal cell a
                                                                                                                                                                                                                                                                                                  Ph.D.
          adenocarcinoma"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                300
```

á

S

Š B

```
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1027
                                                                                                                                                                                                                         1627
                                                                                                                                                                                                                                                                                                                    1567
                                                                                                                                                                                                                                                                                                                                                                                                              1507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1207
                                                                                                                                                                                                                                                                                                                                                                                                                                                             482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  al Similarity
843; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               62
                                         GCCAGAACGAAGTGGTCTATTCCCTCATGGCTGAGCTGGGCTGGCGAAAGGAACCCAGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACTTTGGGGGAAACCATGGTCTTTTTGGAGCCCTAGAGGCTGTGAACGGAGGCCCAGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTGTGTATACCCGCACTGCCTCCTTCCAGGGCCCAGCCCTTCATCTGGTGCATGCTGCACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TGCTGGGAGCTGTGCCCCGTGGCCGCCTCCTGGTTCTGGACCTGTTTGCTGAGAGCCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGCTGGGAGCTGTGCCCCGTGGCCGCCCTCCTGGTTCTGGACCTGTTTGCTGAGAGCCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CAGCCACCACTGCCGTCTATGAGGCCATGACTGCAGTGGATACTGAGGCTGTGTGGCTGC 1146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATGGGGCCGACACTTTCAATGAGATGCAGCCACCTTCCTCAGAGCCCTCCTACCTTGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCATCATCGGGAGCCTCTTCCTGCGAGAGCTGATCAAAGAGTTTGGCACAGACCACATCT
                                                                                                                   TCTGGTACAACCGATCTGATGTGTTTGAGGCCTGGCGGCTGCTGCTCACATCTGCTCCCT
                                                                                                                                                                                  GCAGGGGCCACAATCGTAGCCCGCTGGTCAGGCGGGCGT-CCTACAGATGAATACCAGCA
                                                                                                                                                                                                                         GCAGGGGCCACAATCGTAGCCCGCTGGTCAGGCGGCCGTCCCTACAGATGAATACCAGCA
                                                                                                                                                                                                                                                                                                                      ACGCAGGGCAGCGTGGAGGCTACTGCTCCGGAGTGTGTACAACTGCTCCGGGGAGGCCT
                                                                                                                                                                                                                                                                                                                                                                                                          CAGATTTGGCAGCCTGGGTGACCAGCTTTGCCGCCCGGCGTATGGGGTCTCCCACCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCCAGAACGAAGTGGTCTATTCCCTCATGGCTGAGCTGGGCTGGCGAAAGGACCCAGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTGCCCGCCTCTTCCCCAACTCCACCATGGTAGGCACGGCATGGCCCCCGAGGGCATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CTGCCCGCCTCTTCCCCAACTCCACCATGGTAGGCACGGGCATGGCCCCCGAGGGCATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACTTTGGGGGAAACCATGGTCTTTTTGGAGCCCTAGAGGCTGTGAACGGAGGCCCAGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTGTGTATACCCGCACTGCCTCCTTCCAGGGCCAGCCCTTCATCTGGTGCATGCTGCACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CAGCCACCACTGCCGTCTATGAGGCCATGACTGCAGTGGATACTGAGGCTGTGTGGCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATGGGGCCGACACTTTCAATGAGATGCAGCCACCTTCCTCAGAGCCCTCCTACCTTGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCATCATCGGGAGCCTCTTCCTGCGAGAGCTGATCAAAGAGTTTGGCACAGACCACATCT
                                                                                                                                                                                                                                                                                                                                                                     CAGATTTGGCAGCCTGGGTGACCAGCTTTGCCGCCCGGCGGTATGGGGTCTCCCACCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                28.8%; llarity 91.5%; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ρυ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /lab_host="DH10B (phage-resistant)"
/clone lib="NIH MGC 14"

ECORI; CDNA made by oligo-dT priming. Directionally cloned into EcoRI/KhoI sites using the following 5', adaptor: GGCACGAG(G). Size-selected >500bp for average insert size 1.8kb. Library constructed by Ling Hong in the laboratory of Gerald M. Rubin (University of California, Berkeley) using ZAP-CDNA synthesis kit (Stratagene) and Superscript II RT (Life Technologies)."
a 340 c 338 g 205 t 2 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 741.8; DB 10
Pred. No. 3.5e-129;
0; Mismatches 67;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length
                                                                                                                                                                                                                              1686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1086
                                                                                                                                                                                                                                                                                                                      1626
                                                                                                                                                                                                                                                                                                                                                                                                                 1566
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1026
830
                                                                                                                                      1746
                                                                                                                                                                                  720
                                                                                                                                                                                                                                                                          661
                                                                                                                                                                                                                                                                                                                                                                                                                                                               541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               241
                                                                                                                                                                                                                                                                                                                                                                       601
                                                                                        779
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ຫ
```

Ś

В

Ś 밁 8

片

Ś 밁 Ş 밁 δ 뮍 Ś 밁 Ş 밁 Ś 벎 Ś

Š 밁 . 5 밁 Ś 日 Ś B

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 11
BM976494/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             University of Iowa
2024 University of 1
Tel: 319 356 4866
Fax: 319 356 7171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Email: paul-mccray@uiowa.edu
Tissue Procurement: Dr. M. J. Welsh, University of Iowa
cDNA Library preparation: Dr. M. Bento Soares, University of Iowa
cDNA Library Arrayed by: Dr. M. Bento Soares, University of Iowa
cDNA Sequencing by: Dr. M. Bento Soares, University of Iowa
DNA Sequencing by: Dr. M. Bento Soares, University of Iowa
Clone Distribution: Researchers may obtain clones from Research
Genetics (www.resgen.com) or from Open Biosystems
(www.openbiosystems.com).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HM976494 758 bp mRNA linear EST 21-F
UI-CF-EN1-acz-1-12-0-UI.s1 UI-CF-EN1 Homo sapiens cDNA clone
UI-CF-EN1-acz-1-12-0-UI 3', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Seq primer: MI3 FORWARD POLYA=Yes.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8889548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Genome Res. 6 (9), 97044477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Bonaldo, M.F., Lennon, G. and Soares, Normalization and subtraction: two
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eukaryota; Metazoa;
Mammalia; Eutheria;
1 (bases 1 to 758)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BM976494.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Contact: McCray, PB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Homo sapiens (human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                McCray Lab
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AGGAGCTGGTCAGCTTGTACTATGAGGAGGCAAGAAGCGCCTACCTGAGCAAGGAGCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCCCGCTTGAGGGGCGCGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCTCCCTGTTGAGGGCTGGAG 1887
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Bonaldo, Lennon and Soares, Genome Research, 6:791-806, 1996. First strand cDNA synthesis was primed with an oligo-dr primer containing a Not I site. Double stranded cDNA was ligated to an EcoR I adaptor, digested with Not I, and cloned directionally into pTTT3-Pac vector. The oligonucleotide used to prime the synthesis of first-strand cDNA contains a library tag sequence that is located between the Not I site and the (dT)18 tail. The sequence tag for this library is CTGCTCAGGT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /dev_stage="Adult"
/lab_host="DHIOB (Life Technologies) (T1 phage resistant)"
/lab_host="DHIOB (Life Technologies) (T1 phage resistant)"
/clone lib="U1-CF-EN1"
/clone lib="U1-CF-EN1"
/note="Corgan: Lung; Vector: pT7T3-Pac (Pharmacia) with a modified polylinker; Site 1: EcoR I; Site 2: Not I; Ondified polylinker; Site 1: EcoR I; Site 2: Not I; U1-CF-EN1 is a normalized CDNA library containing the following tissue(s): Primary Lung Cystic Fibrosis following tissue(s): Primary Lung Cystic Fibrosis following tissue(s): Primary Was constructed according to be primary was constructed according to be considered to the constructed according to the constru
                                      TAG_TISSUE=Human Lung
6hr_to LPS 24h
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /mol_type="mRNA"
/db_xref="taxon:9606"
/clone="UI-CF-EN1-acz-1-12-0-UI"
/clssue_type="Primary Lung Cystic Fibrosis Epithelial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GI:19594088
SEQ=CIGCTCAGGI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Lennon, G. and Soares, M.B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Iowa Med Labs,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Chordata; Craniata; Vertebrata; Euteleostomi; Primates; Catarrhini; Hominidae; Homo.
                                                                             Epithelial Cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Iowa City,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        approaches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ΙA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                 Lines
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 facilitate gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EST 21-FEB-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              890
```

Collection (MGC)

can

þ

```
밁
                                                                                                                                                                                                                                                                                 RESULT 12
BG910492
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             뭥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                  SOURCE
ORGANISM
                                                                                                                                          VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           片
      REFERENCE
                                                                                                                                                                                                                                                           DEFINITION
                                                                                                                                                                                                 ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2043
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1983
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1923
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              869
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            518
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             578
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               638
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                98
                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                         602806776F1 NCI CGAP Brn67 Homo
5', mRNA sequence.
BG910492
BG910492.1 GI:14290968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo
1 (bases 1 to 829)
                                                                                  Homo sapiens (human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCCAACTACTACACCCCTCGCTGGCGGCTTTTTCCTGGAGGCGCTGGTTGACAGTGTGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAGGTGCTGGCTAGTGACAGCCGCTTCTTGCTGGGCAGCTGGCTAGAGCAGGCCCGAGCA 1982
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTGGCCTCCCTGNTGAGGGCTGGAGGCGTCCTGGCCTATGAGCTGCTGCCGGCACTGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTGGCCTCCTGTTGAGGGCTGGAGGCGTCCTGGCCTATGAGCTGCTGCTGCCGGCACTGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GTGCAGGAGCTGGTCAGCTTGTACTATGAGGAGGCAAGAAGCGCNTACCTGAGCAAGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GTGCAGGAGCTGGTCAGCTTGTACTATGAGGAGGCAAGAAGCGCCTACCTGAGCAAGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GACATCACAGGATAACCCAGGCCTGGGAGGAGGACGCCCACGGCCTGCTGGTGGGGTCTGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CACCACTGGGCCTTGTTTTCCGCTAATTCCAGGGCAGATTCCAGGGCCCAGAGCTGGACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAGAAGATCTTCCTCAAATATTACCCCGGCTGGGTGGCCGGCTCTTGGTGATAGATTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TTCGTTCTCAGCAAGCAGAGGTACCCCAGCCAGCCGGAGGAGACACTGTGGACCTGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   садедските сели сели селеское по пределения п
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TTGTGGGGGCCAGGAGGCAACATCCTGGACTATGCCAACAAGCAGCTGGCGGGGTTGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TTGTGGGGGCCAGAAGGCAACATCCTGGACTATGCCAACAAGCAGCTGGCGGGGTTGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCGTCAGTCAGTGAGGCCGAGGCCGATTTCTACGAGCAGAACAGCCGCTACCAGCTGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCGGCAGTCAGTGAGGCCGAGGCCGATTTCTACGAGCAGAACAGCCGCTACCAGCTGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GACATCACAGGATAACCCAGGCCTGGGAGGAGGCCCCACGGCCTGCTGGTGGGGTCTGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CACCACTGGGCCTTGTTTTCCGCTAATTCCAGGGCAGATTCCAGGGCCCAGAGCTGGACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAGAAGATCTTCCTCAAATATTACCCCGGCTGGGTGGCCGGCTCTTGGTGATAGATTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TTCGTTCTCAGCAAGCAGAGGTACCCCAGCCAGCCGAGGAGACACTGTGGACCTGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CAGGGCATCCCTTTCCAACAGCACCAGTTTGACAAAAATGTCTTCCAACTGGAGCAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        bi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         28.7%;
99.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 739.4;
Pred. No. 1e-1
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         739.4; DB
No. 1e-128;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           171
                                                                                                                                                                                                                                                        mRNA
sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           rt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2556
                                                                                                                                                                                                                                                                                                                                                                                                                                       4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ω
--
                                                                                                                                                                                                                                                           linear
cDNA clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              others
                                                                                                                                                                                                                                                                 EST 05-JUN-2001
IMAGE:4938307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ۲,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2042
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AUTHORS
TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     당
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURES
                                                                                         밁
                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                 5
                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity
Matches 803; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S NIH-MGC http://mgc.nci.nih.gov/.

National Institutes of Health, Mammalian Gene Collection (M. Unpublished

L Unpublished
Contact: Robert Strausberg, Ph.D.
Email: cgapbs-remail.nih.gov
Tissue Procurement: David N. Louis, M.D.
cDNA Library Preparation: Life Technologies, Inc.
cDNA Library Preparation: Life Technologies, Inc.
cDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information can
found through the I.M.A.G.E. Consortium/LLNL at:
http://image.llnl.gov
plate: LLAM10873 row: h column: 20
High quality sequence stop: 759.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  422
                                    902
                                                                                               479
                                                                                                                                                   842
                                                                                                                                                                                                             419
                                                                                                                                                                                                                                                                 782
                                                                                                                                                                                                                                                                                                                         359
                                                                                                                                                                                                                                                                                                                                                                                722
                                                                                                                                                                                                                                                                                                                                                                                                                                       299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ь
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            детверения в предоставления в предос
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGGGCTGCACCGCTACCTGCGCGACTTCTGTGGCTGCCACGTGGCCTGGTCCGGCTCTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGGGCTGCACCGCTACCTGCGCGACTTCTGTGGCTGCCACGTGGCCTGGTCCGGCTCTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTGGAGCCAGGAGCCCATCTGGCAGCGGGTGTACCTGGCCTTGGGCCTGACCCAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCCCGCTGGGAGCGAGAGATAGACTGGATGGCGCTGAATGGCATCAACCTGGCACTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CAGGTACCGCTATTACCAGAATGTGTGCACGCAAAGCTACTCCTTCGTGTGGTGGGACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gCTGCGCCTGCCGCGG-CACTGCCAGCCGTGCCGGGGGAGCTGACCGAGGCCACGCCCAA
      TTGGGGCCACTTTAACTGTTCCTACTCCTGCTTCCTTCTGGCTCCGGAAGACCCCAT
                                                                                                                                                                                                                                               gCACACCTGGGATGGCCCCTGCCCCCCCCCCCGCACATCAAGCAGCTTTACCTGCAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                          AGAGATGAATGAGTTCTTTACTGGTCCTGCCTTCCTGGCCTGGGGGGGAATGGGCAACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTGGAGCGG-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCCCGCTGGGAGCGAGAGATAGACTGGATGGCGCTGAATGGCATCAACCTGGCACTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CAGGTÁCCGCTÁTTÁCCAGAÁTGTGTGCÁCGCAAAGCTÁCTCCTTCGTGTGGGGACTG
                                                                                               GCATGTTCCCGAGGCTGTCACCA-GGTGTTCCCTCAGGTCAATGTCACGAAGATGGGGCAG
                                                                                                                                GCATGTTCCCGAGGCTGTCACCAGGGTGTTCCCTCAGGTCAATGTCACGAAGATGGGCAG
                                                                                                                                                                                                             cceeerccreeaccadarececrecricescareaccadarecrecriscarreces
                                                                                                                                                                                                                                                                                                                            GCACACCTGGGATGGCCCCCTGCCCCCCCCCCCCCACATCAAGCAGCTTTACCTGCAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        quality sequence stop: 
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /lab_host="DH10B (T1 phage-resistant)"
/clone_lib="MCI_CGAP_BR167"
/note="Forgan: brain; Vector: pCMV-SPORT6; Site 1: Not /note="forgan: brain; Vector: pCMV-SPORT6; Site 1: Not Site 2: Sall; Cloned unidirectionally. Primer: Oligo Average insert size 2.3 kb. Constructed by Life Technologies. Note: this is a NCI_CGAP Library."
a 276 c 242 g 169 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /tissue_type="anaplastic oligodendroglioma
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /organism="Homo sapiens"
/mol_type="mRNA"
/db_xref="taxon:9606"
/clone="IMAGE:4938307"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            caggaggecarergecageggeraracerggeerreggeereaeeeaeee
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                28.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 722.4; DB 12;
Pred. No. 1.6e-125;
0; Mismatches 21;
```

Length

829;

о ,.

Gaps

6

119 481 9

661

239 601 179 541

961 537 901 478 841 418 781 358 721 298 with

1p/19q

NotI; igo dT.

Db Db	Query I Best Lo Matche	BASE COUNT				FEATURES source				TITLE JOURNAL COMMENT	REFERENCE AUTHORS	VERSION KEYWORDS SOURCE ORGANISM	LOCUS DEFINITION ACCESSION	RESULT 13	B &	dd dy	AS AG	9G Qy	8
1682 CAGCATCTGGTACAACCGATCTGATGTGTTTTGAGGCCTGGCGGCTGCTGCTCACATCTGC 1741	Watch 27.5%; Score 707.6; DB 10; Length 816; Local Similarity 97.3%; Pred. No. 9.5e-123; Pred. No. 9.5e-123; Pred. No. 9.5e-14; Indels 8; Gaps 7;	162 a	ECOXI; CUMA made by Oligordi primiting. Directionally cloned into EcoRI/KhoI sites using the following 5' adaptor: GGCACGAG(G). Size-selected >500bp for average insert size 1.8kb. Library constructed by Ling Hong in the laboratory of Gerald M. Rubin (University of	/flssue type="metanotic metanoma" /lab host="mltuo" (phage-resistant)" /clone_lib="NIH_MGC_20" /clone_lib="NIH_MGC_20" /note="organ: skin; Vector: pOTB7; Site_1: XhoI; Site_2: /note="organ: skin; Vector: pOTB7; Site_1: XhoI; Site_2:	/mol type="mRNA" /db xref="taxon:9606" /clone="IMAGE:4639620"	High quality sequence sto Location/Qualifi 1816 /organism="Homo	through the I.M.A.G.E. Consortium/LLNL at: //image.llnl.gov :: LLCM1403 row: k column: 13	Clone digrathon. McC clone distribution information can be					BG476070 816 bp mRNA linear EST 21-MAR-2001 M 602520954F1 NIH MGC 20 Homo sapiens cDNA clone IMAGE:4639620 5', mRNA sequence. BG476070		1139 GTGGCTGCT-AAGGCTGGCTCTTCCAGCACCAGCCGCAGTTCTGGGGGC 1188	1082 TGCCGCAGCCACTACCGCCTCTATGAGGCCATGACTG-CAGTGGATACTGAGGCTGT 1138	1022 CATCTATGGGGCCGACACTTTCAATGAGATGCAGCCACCTTCCTCAGAGCCCTCCTACCT 1081	962 ATTCCCATCATCGGGAGCCTCTTCCTGCGAGAGCTGATCAAAGAGTTTGGCACAACCA 1021	TIGGGGCCACTITAACIGTICCIACTCCIGCTCCTICCTGGCTCCGGAAGACCCCAT
JOURNAL COMMENT	REFERENCE AUTHORS TITLE	KEYWORDS SOURCE ORGANISM	DEFINITION ACCESSION VERSION	RESULT 14 BQ772664/c	g da	D S) Db 1	ος Β.	Q	g 42	dg Qy	Db Oy	g dy	ያ ያ	Db	2 B 4	5 8 4	8 B	Q
ř	1 (bases 1 to 707) 1 (bases 1 to 707) NOT-CGAP http://www.nobi.nlm.nih.gov/noicgap. National Cancer Institute, Cancer Genome Anatomy Proj Tumor Gene Index.	X.	ION UI-H-FE0-bbq-p-12-0-UI.81 NCI CGAP FEO Homo sapiens cDNA clone UI-H-FE0-bbq-p-12-0-UI 3', mRNA sequence. ON BQ772664 BQ772664,1 GI:21981140	RO772664 707 bp mRNA linear	2459 TGACCTGGGGGGATTGGAGGGAAATGACCTGCCCTC 2494	2400 ACAGA - CATICALAGARIAACCICAGGCCTGGGAGGAGGCCCCACGG-CCTGCTGGTGGGGTC 778 720 ACAGACCATTACAGGGATACCCAAGCCTGGGAGGAGGCCCCACGG-CTGCTGGTGGGGTC 778	60 GCCAACACTGGGGCTTGTTTTCCGCTAATTCCAGGGCAGATGCCAGGGGCCCAGAGCTGG 719	600 CAAGAAGATCTTCCTCAAATATTACCCCCGGCTGGTGGCCGGCTCTTGGTGATAGAATTC 659	2282 CAAGAAGATCTTCCTCAAATATTACCCCGGCTGGGTGGCCGGCTCTTGGTGATAG-ATTC 2340	2222 CTTCGTTCTCAGCAAGCAGAGGTACCCCAGCCAGCCGAGGAGAGACACTGTGGACCTGGC 2281	2162 CCAGGGCATCCCTTTCCAACAGCACCAGTTTGACAAAAATGTCTTCCAACTGGAGCAGGC 2221	GGCCAACTACTACACCCCTCGCTGGCGGCTTTTCCTGGAGGCGCTGGTTGACAGTGTGGCGGCTACTACTACACCCCTCGCTGGCGGCTTTTCCTGGAGGCGTGGTTGACAGTGTGGCGGCTGGTTGACAGTGTGGC	CTTGTGGGGGCCAGAAGGCAACATCCTGGACTATGCCAACAAGCAGCTGGCGGGTTGGT 	1982 AGCGGCAGTCAGTGAGGCCGAGGCCGATTTCTACGAGCAGAACAGCCGCTACCAGCTGAC 2041	241 CGAGGTGCTGGCTA-TGACAGCCGCTTCTTGCTGGGCAGCTGGCTAGAGCAGGCCCGAGC 299	CONCOUNTS OF THE PROPERTY OF T		62 TCCCTCCCTGGCCACCAGCCCCGCCTTCCGCTACGACCTGCTGGACCTCACTCGGCAGGC 121	1742 POCCTCCCTGGCCACCAGCCCCGCCTTCCGCTACGACCTGCTGGACCTCACTCGGCAGGC 1801

```
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches 702;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1973
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1913
                                                                                                                                                                                                                                                                                                2153
                                                                                                                                                                                                                                                                                                                                                                                                                              2093
                                                                                                                                                                 2213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   407
                                                                                                                                                                                                                                                                                                                                                                   467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CDNA Library preparation: Dr. M. Bento Soares, University of Iowa CDNA Library Arrayed by: Dr. M. Bento Soares, University of Iowa DNA Sequencing by: Dr. M. Bento Soares, University of Iowa Clone Distribution: Clone distribution information can be obtained from Dr. M. Bento Soares, bento-soares@uiowa.edu POLYA=Yes.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGCACTGGACGAGGTGCTGGCTAGTGACAGCCGCTTCTTGCTGGGCAGCTGGCTAGAGCA 1972
GGACCTGGCCAAGAAGATCTTCCTCAAATATTACCCCGGCTGGGTGGCCGGCTCTTGGTG
                                                                                                                                                                                                                                                                                  CAGTGTGGCCCAGGGCATCCCTTTCCAACAGCACCAGTTTGACAAAAATGTCTTCCAACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCAGCTGACCTTGTGGGGGGCCAGAAGGCAACATCCTGGACTATGCCAACAACAAGCTGGC
                                                                                                                                                   GGGGTTGGTGGCCAACTACTACACCCCTCGCTGGCGGCTTTTCCTGGAGGCGCTGGTTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGCCCGAGCAGCAGCAGTCAGTGAGGCCGAGGCCGATTTCTACGAGCAGAACAGCCGCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGCACTGGACGAGGTGCTAGTGACAGCCGCTTCTTGCTGGGCAGCTGGCTAGAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GAGCAAGGAGCTGGCCTCCCTGNTGAGGGCTTGGAGGCGTCCTGGCCTATGAGCTGCTGCC
                                                                                                  CAGTGTGGCCCAGGGCATCCCTTTCCAACAGCACCAGTTTGACAAAAATGTCTTCCAACT
                                                                                                                                                                                                                                                                                                                                                                   GGGGTTGGTGGCCAACTACTACACCCCTCGCTGGCGGCTTTTTCCTGGAGGCGCTGGTTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCAGCTGACCTTGTGGGGGCCAGAAGGCAACATCCTGGACTATGCCAACAAGCAGCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCCCGAGCAGCAGCAGTCAGTGAGGCCGAGCCCGATTTCTACGAGCAGAACAGCCGNTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      / Indicate Turing (thre recumbergies)
//clone libe "NGI CGAP FEO"
//clone libe school libe ( grade 2) The library was constructed according to Bonaldo, Lennon and Soares,
//clone Research, 6:791-806, 1996. First strand cDNA
//clone Research, 6:791-806, 1996.
//clone Research, 6:791-8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Procurement: James Martin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /dev_stage="Adult"
/lab_host="DH10B (Life Technologies)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       clone="UI-H-FE0-bbq-p-12-0-UI"
tissue_type="Chondrosarcoma Ce
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  organism="Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  27.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 702; DB 13;
Pred. No. 1.1e-121;
n. Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Cell line"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 707;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                       2212
                                                                                                                                                                                                                                                                                                                                                                      408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2092
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        648
                                          2332
                                                                                                                                                                     2272
                                                                                                                                                                                                                                        348
                                                                                                                                                                                                                                                                                                                                                                                                                                     2152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        468
                                                                                                         288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
```

맑 S В Ś 밁 8 맑 Ś 밁 Ş 먉 Ş 밁 Š

```
RESULT 15
BQ006037/c
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Email: cgapbs-r@mail.nih.gov
Tissue Procurement: Dr. Jose Mercuende
cDNA Library Preparation: Dr. M. Bento Soares, University of Iow
cDNA Library Arrayed by: Dr. M. Bento Soares, University of Iow
DNA Sequencing by: Dr. M. Bento Soares, University of Iowa
Clome Distribution: Clone distribution information can be found
through the I.M.A.G.E. Consortium/LLNL at: http://image.llnl.gov
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota, Metazoa; Chordata, Craniata, Vertebrata, Euteleostomi, Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. 1 (bases 1 to 707)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BQ006037 707 bp mRNA linear UI-H-EII-ayy-p-23-0-UI.sl NCI_CGAP_EII Homo sapiens IMAGE:5845510 3', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NCI-CGAP http://www.ncbi.nlm.nih.gov/ncicgap. National Cancer Institute, Cancer Genome Anatomy Project (CGAP), Tumor Gene Index
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BQ006037
BQ006037.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Contact: Robert Strausberg, Ph.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Homo sapiens (human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATAGATTCGCCACCACTGGGCCTTGTTTTCCGCTAATTCCAGGGCAGATTCCAGGGCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGGGTCTGACCTGGGGGGATTGGAGGGAAAATGACCTGCCCTCCACCACCACCCAAAGTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GAGCTGGACAGACATCACAGGATAACCCAGGCCTGGGAGGAGGCCCCACGGCCTGCTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGACCTGGCCAAGAAGATCTTCCTCAAATATTACCCCGGCTGGGTGGCCGGCTCTTGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GAGCTGGACAGACATCACAGGATAACCCAGGCCTGGGAGGAGGCCCCACGGCCTGCTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATAGATTCGCCACCACTGGGCCTTGTTTTCCGCTAATTCCAGGGCAGATTCCAGGGCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGGGTCTGACCTGGGGGGATTGGAGGGAAATGACCTGCCCTCCACCACCACCAAAGTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    primer: M13 FORWARD
                                                                                                           /dev stage="Adult"
//lab host="PH10B (Life Technologies)"
//lab host="PH10B (Life Technologies)"
//clone ilb="NCI CGAP EII"
//note="Organ: Left Pelvis; Vector: pT7T3-Pac (Pharmacia)
//note="Organ: Left Pelvis; Vector: pT7T3-Pac (Pharmacia)
with a modified polylinker; Site=1: EcoR I; Site=2: Not I;
with a modified polylinker; Site=1: EcoR I; Site=2: Not I;
with a modified polylinker; Site=1: EcoR I; Site=2: Not I;
NCI CGAP EII is a normalized cONA library containing the
following tissue(s): Chondrosarcoma. The library was
constructed according to Bonaldo, Lennon and Soares,
Genome Research, 6:791-806, 1996. First strand CDNA
synthesis was primed with an oligo-dT primer containing a
Not I site. Double stranded cDNA was ligated to an EcoR I
adaptor, digested with Not I, and cloned directionally
into pT7T3-Pac vector. The oligonucleotide used to prime
the synthesis of first-strand cDNA contains a library tag
sequence that is located between the Not I site and the
(dT)18 tail. The sequence tag for this library is
TAG_LIB=UI-H-EI1
TAG_TISSUE=chondrosarcoma
TAG_SEQ=ACACTTGCAC"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /organism="Homo sapiens"
/mol_type="mRNA"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              tissue_type="Chondrosarcoma"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          one="IMAGE:5845510"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                University of Iowa
University of Iowa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EST 26-MAR-2002
CDNA clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2512
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                228
                                                                                                                                                                                                                                                                                                                                                                                                                                                   ı;
```

Search c Job time	Db !	0	ᅡ	γQ	DЪ	Ş	Дb	γQ	DЪ	Qy	ఠ	Qy	ф	Ş	đà	Qy	дb	8	дb	Qy	Дb	γQ	Db .	Ş	Query Best L Matche	BASE COU
completed: February 13, 2004, ne : 5311 secs	47	u	107 GGGGTCTGACCTGGGGGGGATTGGAGGGAAATGACCTGCCCT	2453 GGGGTCTGACCTGGGGGATTG	167 GAGCTGGACAGACATCACAGGA	2393 GAGCTGGACAGACATCACAGGA	227 ATAGATTCGCCACCACTGGGCC	2333 ATAGATTCGCCACCACTGGGCC	287 GGACCTGGCCAAGAAGATCTTC	2273 GGACCTGGCCAAGAAGATCTTC	347 GGAGCAGGCCTTCGTTCTCAGC	2213 GGAGCAGGCCTTCGTTCTCAGC	407 CAGTGTGGCCCAGGGCATCCCT	2153 CAGTGTGGCCCAGGGCATCCCT	467 GGGGTTGGTGGCCAACTACTAC	2093 GGGGTTGGTGGCCAACTACTAC	527 CCAGCTGACCTTGTGGGGGCCA	2033 CCAGCTGACCTTGTGGGGGCCA	587 GGCCCGAGCAGCGGCAGTCAGT	1973 GGCCCGAGCAGCGGCAGTCAGT	647 GGCACTGGACGAGGTGCTGGCT	1913 GGCACTGGACGAGGTGCTGGCT	707 GAG	THTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTT	Match 27.2%; ocal Similarity 99.7%; s 702; Conservative (COUNT 136 a 213 c 19
13:31:55		AAA 2556	CCACCACCA		GAGCTGGACAGACATCACAGGATAACCCAGGCCTGGGAGGAGGCCCCCACGGCCTGCTGG	TAACCCAGGCTTGGGAGGAGGCCCCACG	CACCACTGGGCCTTGTTTTCCGCTAATTCCAGGGCAGATTCCAGGGCCCA	TTGTTTTCCGCTAATTCCAGGGCAGATT	GGACCTGGCCAAGAAGATCTTCCTCAAATATTACCCCGGCTGGGTGGCCGGCTCTTGGTG	CTCAAATATTACCCCGGCTGGGTGGCCG	GGAGCAGGCCTTCGTTCTCAGCAAGCAGAGGTACCCCAGCCAG	AAGCAGAGGTACCCCAGCCAGCCGCGAGC	AGTGTGGCCCAGGGCATCCCTTTCCAACAGCACCAGTTTGACAAAAATGTCTTCCAACT	TTCCAACAGCACCAGTTTGACAAAAATG	GGGTTGGTGGCCAACTACACCCCTCGCTGGCGGCTTTTCCTGGAGGCGCTGGTTGA	ACCCCTCGCTGGCGGCTTTTCCTGGAGGC	CAGCTGACCTTGTGGGGGCCAGAAGGCAACATCCTGGACTATGCCAACAAGCAGCTGGC	GAAGGCAACATCCTGGACTATGCCAACAA	GAGCAGCGGCAGTCAGTGAGGCCGAGGCCGATTTNTACGAGCAGAACAGCCGCTA	GAGGCCGAGGCCGATTTCTACGAGCAGA	GCACTGGACGAGGTGCTAGTGACAGCCGCTTCTTGCTGGGCAGCTGGCTAGAGCA	AGTGACAGCCGCTTCTTGCTGGGCAGCTC	CAAGGAGCTGCCCTGTTGAGGGCTGGAGGCGTCCTGGCCTATGAGCTG	データ はいし ひじんし しょうし ひとし はいし こうじん マン・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・	Score 701.4; DB 12; Length 70 Pred. No. 1.4e~121;); Mismatches 2; Indels	9 g 158 t 1 others
			CCCAAAGTGT 48	CCAAAGTGT 2512	CCTGCTGGT 108	CCTGCTGGT 2452	CAGGGCCCA 168	CAGGGCCCA 2392	CTCTTGGTG 228	CTCTTGGTG 2332	HAGACACTGT 288	AGACACTGT 2272	CTTCCAACT 348	CTTCCAACT 2212	GCTGGTTGA 408	GCTGGTTGA 2152	GCAGCTGGC 468	GCAGCTGGC 2092	CAGCCGCTA 528	CAGCCGCTA 2032	GCTAGAGCA 588	GCTAGAGCA 1972	CIGCC 64	3	07; 0; Gaps 0;	
																										-

```
Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OM nucleic -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2575
1426.6
70.4
66.2
62.2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score
     nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US:09-836-613-1
2575
1 CCCGGGCTTAGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query
,Match Length DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               February 13, 2004, 09:08:09; Search time 150 Seconds (without alignments) 7577.077 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 : /cgn2_6/ptodata/2/ina/5A_COMB.seq:*
2 : /cgn2_6/ptodata/2/ina/5B_COMB.seq:*
3 : /cgn2_6/ptodata/2/ina/6A_COMB.seq:*
4 : /cgn2_6/ptodata/2/ina/6B_COMB.seq:*
5 : /cgn2_6/ptodata/2/ina/CTUS_COMB.seq:*
6 : /cgn2_6/ptodata/2/ina/backfiles1.seq:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      569978 seqs, 220691566 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IDENTITY_NUC Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCCGGGCTTAGCCTTCGGGT.....AGTCGAGCGGCCGCGAATTC 2575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GenCore version 5.1.6
Copyright (c) 1993 - 2004 Compugen Ltd.
                                                        5173

6 15233

1 44411529

4 4411529

3 4411529

3 4411529

3 441529

3 4257

3 4257

3 12001

1028

1028

1028

1028

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1036

1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2575
10380
3 US-09-077-3548-1

US-08-242-671-3

1 US-08-242-671-3

1 US-08-440-856A-9

1 US-09-103-840A-2

3 US-09-103-840A-2

3 US-09-103-840A-1

3 US-09-103-840A-1

3 US-09-103-840A-1

3 US-09-259-821A-1

1 US-08-843-659-1

1 US-08-458-568A-1

1 US-08-458-568A-1

1 US-08-458-568A-1

1 US-08-458-745-1

1 US-08-458-745-1

1 US-08-458-745-1

1 US-09-252-991A-12243

1 US-09-252-991A-12243

1 US-09-252-991A-12363

1 US-08-858-420-1

1 US-08-858-420-1

1 US-08-858-420-1

1 US-08-852-401-1

1 US-09-252-991A-14501

1 US-09-252-991A-14501

1 US-09-252-991A-14501

1 US-09-252-991A-14508

1 US-09-252-991A-14508

1 US-09-252-991A-14508

1 US-09-252-991A-14508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1139956
                                                                                                                                                                Sequence 1, Appli
Sequence 12413, A
Sequence 1243, A
Sequence 1243, A
Sequence 12243, A
Sequence 12103, A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 1, Appli
Sequence 3, Appli
Sequence 1, Appli
Sequence 9, Appli
Sequence 16, Appli
Sequence 1, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 1, Appli
Sequence 1, Appli
                                   Sequence 12364, A
Sequence 12243, A
Sequence 12103, A
Sequence 1, Appli
Sequence 1, Appli
Sequence 14501, A
Sequence 14759, A
Sequence 1478, A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Description
           Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 1
US-09-077-354B-1
; Sequence 1, Application US/09077354B
; Patent No. 6255096
```

			_				_	_	a	_	_	_		a	_		
44 i	44	<u>4</u> .	c 42	41	40	39										29	28
54.4	54.6	54.6	54.6	54.8	54.8	ភូភូ	55	ភូ	55	ហ	55	55.2	55.8	56	56	57	٥.
2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2
2312	2189	2189	936	3946	3946	12001	4257	4257	4257	2721	2481	34094	47981	44377	44377	44377	443//
Н	4	ω	4	ω	w	_	w	ω	N	თ	4.	4.	4.	N	N	N	٨
US-07-736-178C-1	US-09-617-871-1	US-08-846-020A-1	US-09-416-509C-2	US-09-083-352-1	US-09-083-351-1	US-08-458-568A-11	US-08-843-659-1	US-09-259-821A-1	US-08-690-473-1	5215881-2	US-09-894-998A-35	US-09-292-034-1	US-09-679-279-1	US-08-804-198-1	US-08-804-227C-7	US-08-804-198-1	08-08-804-227C-7
Sequence 1, Appli	Sequence 1, Appli	Sequence 1, Appli	Sequence 2, Appii	Sequence 1, Appli	Sequence 1, Appli	Sequence 11, Appr	Sequence 1, Appli	Sequence 1, Appli	Sequence 1, Appil	Patent No. 5215881	(Li	Sequence 1, Appli	Sequence 1, Appli	Sequence 1, Appli	Sequence /, Appli		•

ALIGNMENTS

ING SAME

us-		٠. ٠.	٠			••	٠. ٠			••	~	. ~	• •	٠.	٠. ٠		. ~.	~-	٠. ٠			~-	•• •		٠.	٠. ٠	٠	~-	٠. ٠	. ~.	י. סי
; FEATURE: CDS ; NAME/KEY: CDS ; LOCATION: 1022330 US-09-077-354B-1	ORGANISM: Homo sapiens TISSUE TYPE: Peripheral Blood CELL TYPE: Leukocyte	MOLECULE TYPE: CDNA ORIGINAL SOURCE:	GY: lin	nucleic ació	SEQUENCE CHARACTERISTICS: LENGTH: 2575 base pairs		516 742 4	TELECOMMUNICATION INFORMATION: TELEPHONE: 516 742 4343	REFERENCE/DOCKET NUMBER: 12416	TRATION NUMBER: 34,6	NAME: POKALSKY, ANN R.	AGENT 1	APPLICATION NUMBER: PCT/US96/UU/4/	TION DATA:	20	APPLICATION NUMBER: US/09/077,354B	SOFTWARE: FACENCIN RELEASE #1.0, VEIBION #1.25	SYSTEM: PC-DOS/MS-DOS	IBM PC	TYPE: F	COMPUTER BEADDELE FORM.	14	••	CITY: GARDEN CITY	BE: SCULLY, SCOTT	SS:		OF INVENTION: SYNTHETIC MAMMALIAN	WEBER, BIRGIT; BLANCH	ADDITCANT: HOPWOOD, JOHN JOSEPH; SCOTT, HAMISH STEELE;	Patent No. 6255096
																												HUCCOL			

000

იი

ი

ი

AGACC 1	901 GTTGGGGCCACTTTAACTGTTCCTACTCCTGCTCCTTCCT	841 GGCATGTTCCCGAGGCTGTCACCAGGGTGTTCCCTCAGGTCAATGTCACGAAGATGGGCA 9	TTGGGATGGCCCCCTGCCCCTCCTGGCACATCAAGCAGCTTTA CCTGGAACAGATGCGCTCCTTCGGCATGACCCAGTGCTGCCTGC	AGAGATCAATGAGTFCTTTACTGGTCCTGCCTTCCTGGCCTGG	41 GGGCCGGCTGGGAGAGAGATAGACTGGATTGGCCTGGCC	481 ACAGGTACCGCTATTACCAGAATGTGTGCACGCAAAGCTACTCCTTCGTGTGGTGGGACT 5 541 GGGCCCGCTGGGAGCGAAGATAGACCTGGATGGCATCAACCTGGCACTGG 6 [OY 421 AGCTGCGCCTGCCGGGGCACTGCCAGCCGTGCCGGGGGAGCTGACCGAAGGCCACGCCCA 480	GCGGCGGCGGGCGCGCGGCGGCGGGCGGGCGGCGCGGCG	241 ACTICTCCGTGTCGGTGCGAGCGCGCTTGGCAAGCCGGGCTTGGACAACCTACAGCC 30 301 TGGGCGGCGCGCGCGGCGCGCGGGTGCGGGTGCGGGCTCCACGGGCTGGCGGCGCGCGC	GOGGCCGTGCGGGCGCTCGTGGCCCGCGCTGCTGGGGCCAGGCCCCGCGGCTLLLLLLLLLL	121 ccgcggccgrggaggrccrrccrggccggagccgagggagg	CACGTGGCCGGAGGCCGGCAGCTGATTGG GGACCCGCAGGACTGAGACCATGGAGGCG 	Thes 2575; Conservative 0; Mismatches 0; Indels 0; Gaps 1 CCCGGGCTTAGCCTTCGGGTCCACGTGGCCGGAGGCCGGAGCTGATTGGACGCGGGCCG 6	100.0%; Score 2575; DB
Db 2041 CCTTGTGGGGGCCAĞAACATCCTGGACTATGCCAACAAGCAGCTGGGGGGGTTGG 2100 Qy 2101 TGGCCAACTACTACTACCCCTCGCTGGCGGGGGTTTTCCTGGAGGGGGTTGACAGTGTGG 2160	198	QY 1921 ACGAGGTGCTGGCTACTGACAGCCGCTTCTTGCTGGCCAGCTGGCTACAGCAGCCCAGC 1990	1861 AGCTGGCCTCCCTGTTGAGGGCTGGAGGCGTCCTGGCCTATGAGCTGCTGCCGGCACTGG	Db 1741 CTCCTCCCTCACCACCACCACCCCCCCCCCCCCCCCCC	Qy 1681 CCAGCATCTGGTACAACCGATCTGATGTGTTGAGGCCTGGCGGCTGCTGCACATCTG 1740 Db 1681 CCAGCATCTGGTACAACCGATCTGATGTTTGAGGCCTGGCGGCTGCTCACATCTG 1740 Db 1681 CCAGCATCTGGTACACCGATCTGATGTTTTGAGGCCTGGCGGCTGCTGCTCACATCTG 1740 QY 1741 CTCCCTGGCCACCAGCCCGCCTTCCGCTACGACCTCACTCGGCAGG 1800	444	1501 CAGTGCCAGATTTGGCAGCCTGGGTGACCAGCTTTGGCCGGCC	Qy 1441 GCATCAGCCAGAACGAAGTGGTCTATTCCCTCATGGCTGAGCTGGGCTGAAGGACC 1500	1381 CAGAAGCTGCCCGCCTCTTCCCCAACTCCACCATGGTAGGCACGGGCATGGCCCCCGAGG	1261 GCCAGCCTGTGTATACCCGCACTGCCTCCCAGGGCCCTCCATCATCTGGTGCATGC 1321 TGCACAACTTTGGGGGAAACCATGGTCTTTTTGGAGCCCTAGAGGCTGTGAACGAGGC 1321 TGCACAACTTTGGGGGAAACCATGGTCTTTTTTGGAGCCCTAGAGGCTGTGAACGAGGC 1321 TGCACAACTTTGGGGGAAACCATGGTCTTTTTTGGAGCCCTAGAGGCTGTGAACGGAGGC	Qy 1201 GGGTGTGTGGGAACCTGTGCGCGCTGCGCTGTCTGGACCTGTTTGGACCTGTTGGACCTGTTTGGACCTGTTTTGGACCTGAGACCTGTTTTGGACCTGAGACCTGTTTTGGACCTGAGACCTGTTTTGGAGACCTGAGAGACCTGTTTTGGAGACCTGAGAGACCTGTTTTGGAGACCTGAAGACCTGTTTGGATGC 1320 Qy 1261 GCCAGCCTGTGTATACCCGCACTGCCTTCCAGGGCCAACCCTTCATCTGGTTGCATGC 1320	1141 GGCTGCTCCAAGGCTGGCTCTTCCAGCACCAGCCGCAGTTCTGGGGGCCCGCCC	1081	Qy 1021 ACATCTATGGGGCCGACACTTTCAATGAGATGCAGCCCTCCTAGAGGCCTCCTACC 1080

```
COUNTER:

ZIP: 11530

COMPUTER READABLE FORM;

MEDIUM TYPE: Ploppy disk
COMPUTER: IBM PC COmpatible
ODERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PATCHITIN Release #1.0, Versi
APPLICATION DATA:
APPLICATION UNMBER: US/09/077,354B
FILING DATE: 22-APRIL-1999
PRIOR APPLICATION DATA:
APPLICATION UNMBER: PCT/US96/00747
FILING DATE: 22-NOV-1996
ATTORNEY/AGENT INFORMATION:
REGISTRATION NUMBER: 34,697
REFERENCE/DOCKET NUMBER: 12416
TELECOMUNICATION INFORMATION:
TELEPHONE: 516 742 4363
INFORMATION FOR SEQ ID NO: 3:
SEQUENCE CHARACTERISTICS:
TENERMATION FOR SEQ ID NO: 3:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 2
US-09-077-354B-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 3, Application US/09077354B
FATERL NO. 6255096
GENERAL INFORMATION:
APPLICANT: HOPWOOD, JOHN JOSEPH, SCOTT, HAMISH STEELE;
APPLICANT: HOPWOOD, JOHN JOSEPH, LIANNE; ANSON, DONALD STEWART
TITLE OF INVENTION: SYNTHETIC MAMMALIAN
TITLE OF INVENTION: SYNTHETIC MAMMALIAN
TITLE OF INVENTION: 'N-ACETYLGUICOSAMINIDASE AND GENETIC SEQUENCES ENCODING SAME
NUMBER OF SEQUENCES: 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CORRESPONDENCE ADDRESS:
ADDRESSEE: SCULLY, SCOTT, MURPHY & PRESSER
STREET: 400 GARDEN CITY PLAZA
CITY: GARDEN CITY
STATE: NEW YORK
            LENGTH: 10380 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGTACTGTTTTCTTTCCACTTAAAAAAAAAAAAAAAGTCGAGCGGCCGCGAATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCTGGGGGGATTGGAGGGAAATGACCTGCCCTCCACCACCACCACAAAGTGTGGGATTAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCAAGAAGATCTTCCTCAAATATTACCCCGGCTGGGTGGCCGGCTCTTGGTGATAGATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCCAGGGCATCCCTTTCCAACAGCACCAGTTTGACAAAAATGTCTTCCAACTGGAGCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AGTACTGTTTTCTTTCCACTTAAAAAAAAAAAAAAAAGTCGAGCGGCCGCGAATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CAGACATCACAGGATAACCCCAGGCCTGGGAGGAGGCCCCACGGCCTGCTGGTGGGGGTCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCCACCACTGGGCCTTGTTTTCCGCTAATTCCAGGGCAGATTCCAGGGCCCAGAGCTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCTTCGTTCTCAGCAAGCAGAGGTACCCCAGCCAGCCGCGAGGAGACACTGTGGACCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCTTCGTTCTCAGCAAGCAGAGGTACCCCAGCCAGCCGCGAGGAGACACTGTGGACCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCCAGGGCATCCCTTTCCAACAGCACCAGTTTGACAAAAATGTCTTCCAACTGGAGCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCTGGGGGGATTGGAGGGAAATGACCTGCCCTCCACCACCACCCAAAGTGTGGGATTAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CAGACATCACAGGATAACCCAGGCCTGGGAGGAGGACCCCACGGCCTGCTGGTGGGGTCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCACCACTGGGCCTTGTTTTCCGCTAATTCCAGGGCAGATTCCAGGGCCCAGAGCTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCAAGAAGATCTTCCTCAAATATTACCCCGGCTGGGTGGCCGGCTCTTGGTGATAGATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               UNITED STATES
linear
                                                                                                                                                                                                                                                                                                                                                                              Version
                                                                                                                                                                                                                                                                                                                                                                                #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2160
                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                 S
                                                                                                                                                                             밁
                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                    片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity
Matches 1429; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -09-077-354B-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LOCATION:
FEATURE:
NAME/KEY:
LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MOLECULE TYPE: I
ORIGINAL SOURCE:
ORGANISM: Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURE:
NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURE:
NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      POSITION IN GENOME: CHROMOSOME/SEGMENT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8214
                                                                                                                                                                                                                                                            8154
                                                                                                                                                                                                                                                                                                    1532
                                                                                                                                                                                                                                                                                                                                                                                1472
                                                                                                                                                                                                                                                                                                                                                                                                                         8034
                                                                                                                                                                                                                                                                                                                                                                                                                                                             1412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7854
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1232
                                                                                                                                         1652
                                                                                                                                                                                                                    1592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7974
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 7914
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCTCCGGAGTGTGTACAACTGCTCCGGGGAGGCCTGCAGGGGGCCACAATCGTAGCCCGCT 1651
                                                                                                                                                                                                                                                                                                                                                                          CATGGCTGAGCTGGGGGAAAAGGACCCAGTGCCAGATTTGGCAGCCTGGGTGACCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCAGGGCCAGCCCTTCATCTGGTGCATGCTGCACAACTTTGGGGGGAAACCATGGTCTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  eccecaerrereesescecesceaeareasescrereeseaecrereeccesseses
                     TGAGGCCTGGCGGCTGCTCACATCTGCTCCCTGGCCACCAGCCCGCCTTCCG
                                                         TGAGGCCTGGCGGCTGCTCACATCTGCTCCCTCCCTGGCCACCAGCCCCGCCTTCCG 1771
                                                                                                                                                                                                                                                                                       CTTTGCCGCCCGGCGGTATGGGGTCTCCCACCCGGACGCACGGGCAGCGTGGAGGCTACT 1591
                                                                                                                                                                                                                                                                                                                                                                                                                                                           CATGGTAGGCACGGGCATGGCCCCCGAGGGCATCAGCCAGAACGAAGTGGTCTATTCCCT 1471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGGAGCCCTAGAGGCTGTGAACGGAGGCCCAGAAGCTGCCCGCCTCTTCCCCCAACTCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGGAGCCCTAGAGGCTGTGAACGGAGGCCCAGAAGCTGCCCGCCTCTTCCCCCAACTCCAC 1411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCAGGGCCAGCCCTTCATCTGGTGCATGCTGCACAACTTTGGGGGGAAACCATGGTCTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ccrecregarcarearingereadadeceadecieroraracecedeacieccie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCTCCTGGTTCTGGACCTGTTTGCTGAGAGCCAGCCTGTGTATACCCGCACTGCCTCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCGCAGTTCTGGGGGCCCGGCCCAGATCAGGGCTGTGCTGGGAGCTGTGCCCCGTGGCCG
                                                                                                   GGTCAGGCGGCCGTCCCTACAGATGAATACCAGCATCTGGTACAACCGATCTGATGTGTT
                                                                                                                                       GGTCAGGCGGCCGTCCCTACAGATGAATACCAGCATCTGGTACAACCGATCTGATGTGTT
                                                                                                                                                                               GCTCCGGAGTGTGTACAACTGCTCCGGGGAGGCCTGCAGGGGGCCACAATCGTAGCCCGCT
                                                                                                                                                                                                                                                            CTTTGCCGCCCGGCGGTATGGGGTCTCCCACCCGGACGCAGGGGCAGCGTGGAGGCTACT
                                                                                                                                                                                                                                                                                                                                          CATGGCTGAGCTGGGCGAAAAGGACCCAGTGCCAGATTTGGCAGCCTGGGTGACCAG
                                                                                                                                                                                                                                                                                                                                                                                                                       CATGGTAGGCACGGGCATGGCCCCCGAGGGCCATCAGCCAGAACGAAGTGGTCTATTCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           exon 4
3387..3472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      exon 3
3056..3202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                exon 2
2115..2262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             exon 1
990..1372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         exon 6
7745..8955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  exon 5
5667..5923
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ψı
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        55.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Chromosome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 1426.6; DB 3
Pred. No. 3.3e-289;
0; Mismatches 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 10380;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
```

8393

8333 1711 8273 8213

8153 1531 8093 8033

7973 1351 7913 1291 7853 1171

0

7793

Ś 뭐 Ş B \$ 뮍 δ g Ş 문 Ş 밁 5

Š 밁 8 ğ Ş

8454

8394

1772

```
Sequence 1, Application US/08242677
Patent No. 5677143
GENERAL INFORMATION:
APPLICANT: Gaynor, Richard B
APPLICANT: Wu, Foon W.
TITLE OF INVENTION: Cellular Nucle
TITLE OF INVENTION: and Uses There
TITLE OF INVENTION: Treatment of J
NUMBER OF SEQUENCES:
ADDRESSEE: Arnold, White & Durke
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 3
US-08-242-677-1
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                         COUNTRY: US
ZIP: 77210
                                                                                                                                                                                 STREET: P.O. I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8934
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8754
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8634
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8874
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8814
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8694
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2072
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2012
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGAGGCAAGAAGCGCCTACCTGAGCAAGGAGCTGGCCTCCCTGTTGAGGGCTGGAGGCGT 1891
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTACGACCTGCTGGACCTCACTCGGCAGGCAGTGCAGGAGCTGGTCAGCTTGTACTATGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTACGACCTGCTGGACCTCACTCGGCAGGCAGTGCAGGAGCTGGTCAGCTTGTACTATGA 1831
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GAGGCCCCACGGCCTGCTGGTGGGGGTCTGACCTGGGGGGATTGGAGGGAAATGACCTGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGAGGCAAGAAGCGCCTACCTGAGCAAGGAGCTGGCCTCCCTGTTGAGGGCCTGGAGGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CAGGGCAGATTCCAGGGCCCAGAGCTGGACAGACATCACAGGATAACCCAGGCCTGGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTGGGTGGCCGGCTCTTGGTGATAGATTCGCCACCACTGGGCCTTGTTTTTCCGCTAATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTGGGTGGCCGGCTCTTGGTGATAGATTCGCCACCACTGGGCCTTGTTTTCCGCTAATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCAGCCGCGAGGAGACACTGTGGACCTGGCCAAGAAGATCTTCCTCAAATATTACCCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTTCCTGGAGGCGCTGGTTGACAGTGTGGCCCAGGGCATCCCTTTCCAACAGCACCAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TTTCCTGGAGGCGCTGGTTGACAGTGTGGCCCAGGGCATCCCTTTCCAACAGCAGCAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CTATECCAACAAGCAGCTGGCGGGGTTGGTGGCCAACTACTACACCCCTCGCTGGCGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTATGCCAACAAGCAGCTGGCGGGGTTGGTGGCCAACTACTACACCCCTCGCTGGCGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTACGAGCAGAACAGCCGCTACCAGCTGACCTTGTGGGGGGCCAGAAGGCAACATCCTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCTGGCCTATGAGCTGCCGGCACTGGACGAGGTGCTGGCTAGTGACAGCCGCTTCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCTGGCCTATGAGCTGCCGGCACTGGACGAGGTGCTGGCTAGTGACAGCCGCTTCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GAGGCCCCACGGCCTGCTGGGGGTCTGACCTGGGGGGATTGGAGGGAAATGACCTGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CÁGGGCAGATTCCAGGGCCCAGAGCTGGACAGACATCACAGGATAACCCAGGCCTGGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCAGCCGCGAGGAGACACTGTGGACCTGGCCAAGAAGATCTTCCTCAAATATTACCCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           X
                                                                                                                                                                                                                           P.O. Box 4433
                                                                                                           USA
                                                                                                                                                                                                                                                                                                                                                              Cellular Nucleic Acid Binding Protein
and Uses Thereof in regulating Gene E
Treatment of AIDS
                                                                                                                                                                                                                                                              & Durkee
                                                                                                                                                                                                                                                                                                                                                                                                     Expression
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9166
                                                                                                                                                                                                                                                                                                                                                                                                        and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2071
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8813
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8753
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8693
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8633
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2011
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1951
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8513
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9053
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8873
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9113
                                                                                                                                                                                                                                                                                                                                                                                                            j
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ; NAME/KEY:
; LOCATION:
US-08-242-677-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                    RESULT 4
US-08-440-856A-9
                                                                                                                                                                                                                                                                                                                                                                                                                                               멼
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             á
Sequence 9, Application US/08440856A
PATCHI NO. 5750873
GENERAL INFORMATION:
APPLICANT: DELLAPORTA, STEPHEN L.
TITLE OF INVENTION: MATERIALS AND METHODS FOR PRODUCING TITLE OF INVENTION: PLANTS WITH SINGLE-SEX FLOWERS
NUMBER OF SEQUENCES: 9
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
Matches 218; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEFAX: 713-789-2679
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 5173 base pair
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: Patentin Release #1.0, CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MOLECULE TYPE: cDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME: Mayfield, Denise L.
REGISTRATION NUMBER: 33,732
REFERENCE/DOCKET NUMBER: UTI
TELECOMMUNICATION INFORMATION:
TELEPHONE: 713.787-1400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: US/0
FILING DATE:
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TYPE: nucleic acid
STRANDEDNESS: sing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  105
                                                                                                                                                                                                                                                                                                                                                                                                                                               889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            769
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     649
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCTGGGGCGTCCCTGGGGTCCGGCCCGCGTAGAGGAGAAGCTGCTGGTCCTGAGCGCCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GAGGCGGTGGCCGCCGCCGGTGGGGGGTCCTTCTCCTGGCCGGGGGCCCGGGGGCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTCGTGTGGGGACTGGGCCCGCTGGGAGAGAGAGACACTG 568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GACGCCCTGACGCGAAGCGAGCGCGCTACCTGCAGAGGGCGGTGGAGGTGTCGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCCTGGTCCGCCTCTCAGCTGCCGCCTGCCGGCCACTGCCAGCCGTGCCGGGGGGAGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    eccenesces de la constant de la cons
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ccaecccececcaecuricaeceaere en contra contra
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GACGGGGATGAGGCCGGGCCTGCCGAGGACGCGGCGGCGCTGGTGGCCGGGCGACTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCGAGGCCAACGCCCAACAGGTACCGCTATTACCAGAATGTGTGCACGCAAAGCTACTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCGGACGCCCGGCGCTGCTGGCGCGTTCTGGAGGACGCTGCAGGCGGGGCTGGGCCAGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5173 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US/08/242,677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                UTSD:401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 70.4; DB 1;
Pred. No. 7.4e-06;
0; Mismatches 246;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 5173;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                           932
```

0

Gaps

Ş 밁 Ś 밁 Š 밁 Š 밁 Ş 밁 á 밁 Ş 8 Ş 밁 S В δ 밁

밁

ADDRESSEE: MORRI: STREET: 2000 PENI CITY: WASHINGTON STATE: D.C.

3: MORRISON & FOERSTER 2000 PENNSYLVANIA AVE. N.W.

```
RESULT 5
US-09-128-155-16/c
US-09-128-155-16/c
; Sequence 16, Application
; Patent No. 6117654
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                  B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           뮹
                                                                                                                                                                                       멼
                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity
APPLICANT: Pan, Yang
TITLE OF INVENTION: NOVEL MOLECULES OF TANGO-77 RELATED PROTEIN FAMILY
TITLE OF INVENTION: AND USES THEREOF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATTORNEY/AGENT INFORMATION:
NAME: MILLMAN, ROBERT A.
REGISTRATION NUMBER: 36,217
REFERENCE/DOCKET NUMBER: 0546
TELECOMMUNICATION INFORMATION:
TELEPHONE: (202) 887-1517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STRANDEDNESS:
TOPOLOGY: lir
MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOFTWARE: Patentin Release #1.0, CURRENT APPLICATION DATA: APPLICATION NUMBER: US/08/440,85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TELEFAX: (20
TELEX: 70614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TELEPHONE: (202) 887-0763
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE: 15
CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         480
                                                                                                                                                                                                                                                              660
                                                                                                                                                                                                                                                                                                                                      600
                                                                                                                                                                                                                                                                                                                                                                                                                  540 AGCATCCTGTCSTTCGACGCSGSSGAGTTCGACCGCGTGCTCCGCGTCAACGCGCTGGGC 599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       174 GAGGCCCGGGAGGCGGCGGCCGTGCGGGCGCTCGTGGCCCGGCTGCTGGGGCCCAGGCCCC
                                                                                                                                                                                                                        474 ACGCC 478
                                                                                                                                                                                                                                                                                                  414 GECTETEAGETGEGECTGEGGGGCCACTGCCAGCCGTGCCGGGGGAGCTGACCGAGGCC 473
                                                                                                                                                                                                                                                                                                                                                                            354 GCCGCCGCGGGGCTGCACCGCTACCTGCGCGACTTCTGTGGCTGCCACGTGGCCTGGTCC 413
                                                                                                                                                                                                                                                                                                                                                                                                                                               294 TACAGCCTGGGCGGCGCGCGCGCGCGCGTGCGGGTGCGCGGCTCCACGGGCGTGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             234 GCGGCCGACTTCTCCGTGTCGGTGGAGCGCGCTCTGGCTGCCAAGCCGGGCTTGGACACC 293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              114 ecoerresceceses ereses en contrator de coses es esces es es escentes es estados en 173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        20037
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCSGCGGGSGAGGCGCTGGCGKCGGCGCTGGGSCCGCASGTCRGSTTCGTGCGSTGCGAC
                                                                                                                                                                                       CCGCC 724
                                                                                                                                                                                                                                                              GCATCRTCTCCGTCGCCAGCGTCGCSGSCGTGCTSGGCGGCCTCGGCCCGCACGCCTACA
                                                                                                                                                                                                                                                                                                                                      GCCGCGCTCGGSATGAAGCACGCGGCGCKCGCCATGACCCAGCGCCGCGCGCGCGCGGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GTGTCSGTGGAGGASGACGTSSRGCGCGCCGTSGACTGSGCGCYGTSGCGCSRYGRCGGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1288 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                15-MAY-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    poth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      42.5%;
                                                                                             US/09128155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US/08/440,856A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ٦
٢:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 66.2; DB 1;
Pred. No. 4.1e-05;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         05463-20001.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches 179;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 1288;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             419
                                                                                                                                                                                                                                                                719
```

```
Ś
                                                                                                             밁
                                                                                                                                       ş
                                                                                                                                                                     밁
                                                                                                                                                                                               Ś
                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                  ; FEATURE:
; NAME/KEY: misc feature
; LOCATION: (1).\(\tau\). (152331)
; OTHER INFORMATION: n = A,T,C
US-09-128-155-16
밁
                      Ś
                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILE REFERENCE: 09404/052001

CURRENT APPLICATION NUMBER: US/09/128,155

CURRENT FILING DATE: 1998-08-03

EARLIER APPLICATION NUMBER: US 60/091,650

EARLIER FILING DATE: 1998-07-02

EARLIER APPLICATION NUMBER: US 60/054,646

EARLIER PILING DATE: 1997-08-04

NUMBER OF SEQ ID NOS: 18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOFTWARE: PastSEQ for Windows Version 3.0 SEQ ID NO 16
                                                                                                                                                                                                                                                                                                                                             Matches 166;
                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LENGTH: 152331
                                                                                                                                                                                                                                                                                   22261
21962 CGCGGGGGGCGGGCC 21948
                                                                                                                                                                     22142
                                                                                                             132
                                                                                                                                                                                                                                                                                                                  72 GGCCGTCGCGGGACCCGCAGGACTGAGACCATGGAGGCGGTGGCGGTGGCCGCGGCGGTG
                                                                                                                                                                                                                                                                                                                                                           Similarity
                                                                                                                                                                                                                                                        CGCTACCTGCGCGAC 386
                                                                                                                                                                       GECECEGECECETECEGETECECECTCCACEGECETEGCECCCCCCCCGEGECTECAC
                                                                                                                                         TCGGTGGAGCGCGCTCTGGCTGCCAAGCCGGGCTTGGACACCTACAGCCTGGGCGGCGGC 311
                                                                                                                                                                                                 eccereceeccercereecceecrecreesecaeccaecceecceaccriciceere
                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                           2.6%;
52.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                     9
                                                                                                                                                                                                                                                                                                                                             0; Mismatches 148;
                                                                                                                                                                                                                                                                                                                                                           Score 66.2; DB 3; Pred. No. 0.00012;
                                                                                                                                                                                                                                                                                                                                                                       Length 152331;
                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                             ۲.
                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                     371
                                                                                                                                                                                                                                                           191
                                                                                                                                                                                                                                                                                                                   131
                                                                                                                                                                         22083
                                                                                                                                                                                                                                                                                        22202
                                                         21963
                                                                                                               22023
                                                                                                                                                                                                    251
                                                                                                                                                                                                                               22143
```

WESULY 6
US-09-103-840A-1
; Sequence 1, Application US/09103840A
Patent No. 6394328
; GENERAL INFORMATION:
APPLICANT: FLEISCHMAN, Robert D.
APPLICANT: WHITE, Owen R.
APPLICANT: VENTER, John C.
TITLE OF INVENTION: DNA SEQUENCES FOR STRAIN ANALYSIS IN MYCOBACTERIUM TITLE OF INVENTION: UNA SEQUENCES FOR STRAIN ANALYSIS IN MYCOBACTERIUM TITLE OF INVENTION NUMBER: US/09/103,840A
; CURRENT FILING DATE: 1998-06-24
; NUMBER OF SEQ ID NOS: 2
SOFTWARE: Patentin Ver. 2.1
; SEQ ID NO 1
; LENGTH: 4411529
TYPE: DNA
ORGANISM: Mycobacterium tuberculosis
OTHER INFORMATION: H37RV
US-09-103-840A-1

Query Match
Best Local Similarity 49.6%; Pred. No. 0.0017;

```
APPLICANT: WHITE, Owen R.

APPLICANT: WRITE, Owen R.

APPLICANT: PRASER, Claire M.

APPLICANT: VENTER, John C.

TITLE OF INVENTION: DNA SEQUENCES FOR STRAIN

TITLE OF INVENTION: TUBERCULOSIS

FILE REFERENCE: 24366-20007.00

CURRENT APPLICATION NUMBER: US/09/103,840A

CURRENT FILING DATE: 1998-06-24

NUMBER OF SEQ ID NOS: 2

SOFTMARE: Patentin vor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-09-103-840A-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ß
밁
                                                 á
                                                                                                                    밁
                                                                                                                                                                         Ş
                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-09-103-840A-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 2, Application US/09103840A Patent No. 6294328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity
Matches 189; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQ ID NO 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OTHER INFORMATION: CDC 1551
OTHER INFORMATION: "n" bases
OTHER INFORMATION: represent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM: Mycobacterium tuberculosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ENGTH: 4403765
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3933833
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3934193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3934133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3934073
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3933893
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3934013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3933953
625578
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           333
                                                                                                                                                                                      154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  187;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                             94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGGGTCGGCGGTGACGG 3934209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGCAACGGCGGCGACGGCGGGACGGCGCAACCGGTGCCGCAGGTCTCGGCGACAACGGC 3934192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGCGATGGGGCCAGCGGTCTCGGCCTGGGCCTCTCCGGCTTTGACGGCGGCCAAGGCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TTCGGCGGGGCCGGGTAAGGCCGGCGGCGGAAACGGCGGCGGCGGCGGTGACGGC 3934012
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGCGGCTCCGGCGGCACCGGCGACGGCGATGCGGGCTCTGGTGGTGGCGGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGAGACCATGGAGGCGGTGGCGGTGGCCGCGGTGGGGGTCCTTCTCCTGGCCGGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGCGGCAACGGCGCACCGGCGGCAAAAGGCGGCGCCGGTGGTGCGGGAACCCCTGGGCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGCGGCTCCACGGGCGTGGCCGGCCGCCGGGGGGGCTGCACCGCGACTTCTGT 392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      <u> естестеееессиеессесеесеестстссететсеетеваесесстстеестес</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGCCATCGGTGGCGACGGGGTGCCGGTGGGGGCCGGTGGTGCGGGTGGTTGTACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ĊĂĂĠĠĊĠĠĠĠĊĊĠĠĊĠĠĊĂĠĊĠĊĊĠĠĊĠĊĊĠĠĊATĊĀĂĊĠĠĠĠĊĊĠĠĊĠĠĠĠĊĊĠĠ
                                                                                                                                                                                   creacaccaregaececrecresces
                                                           GGCTGCTGGGGCCAGGCCCGCGGCCGACTTCTCCGTGTCGGTGGAGCGCGCTCTGGCTG
                                                                                                                          CGCGTGGTTCGGCAACGGTGGCGCCGGCGGCGGCGGCGGCGGCGGCGGCGCGCACCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                2.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   409
                                                                                                                                                                                                                                                                                                                                                                   Score 61; DB 3;
Pred. No. 0.0031;
0; Mismatches 19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              a a
t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                     reccediterarececcionces es arececcion de la constant de la constan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              various positions throughout t, c or \boldsymbol{g}
                                                                                                                                                                                                                                                                                                                                                                            Mismatches 195;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STRAIN ANALYSIS IN MYCOBACTERIUM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  188;
                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 4403765,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                         ۳.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                the
                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3934132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3933952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          94
                                                                                                                                                                                                                                                                                                                 153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3933892
   625637
                                                                  273
                                                                                                                                                                                         213
                                                                                                                                                                                                                                                     625517
                                                                                                                              625577
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1
```

RESULT 9 US-09-103-840A-1/c

Sequence 1, Application Patent No. 6294328 GENERAL INFORMATION:

US/09103840A

```
APPLICANT: FRASER, Claire M.
APPLICANT: VENTER, John C.
ITILE OF INVENTION: DAM SEQUENCES FOR STRAIN
ITILE OF INVENTION: TUBERCULOSIS
FILE REFERENCE: 24366-20007.00
CURRENT APPLICATION NUMBER: US/09/103,840A
CURRENT APPLICATION DAMBER: US/09/103,840A
CURRENT APPLICATION STRAIN
CURRENT FILING DATE: 1998-06-24
NUMBER OF SEQ ID NOS: 2
SOFTWARE: Patentin Ver. 2.1
SEQ ID NO 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ; OTHER INFORMATION: CDC 1551
; OTHER INFORMATION: "n" bases at various
; OTHER INFORMATION: represent a, t, c or
US-09-103-840A-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-09-103-840A-2/c
                                                         Ś
                                                                                                                             밁
                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                                                  맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                sequence 2, Application US/09103840A Patent No. 6294328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches 143;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM: Mycobacterium tuberculosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            625817 GGCCGGCGGGGGGGCGGTGCCGGC 625841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      337256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 625638
                                                                                                                                                                                                                                                                                                                                                                                                     337196
337016
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     274
                                                                                                                                                                                                 284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCGGCTCCACGGGCGTGGCGGCCGCCGGGGGCTGCACCGCTACCTGCGCGACTTCTGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGÁCGGCGGCGGCGGTGCCGGCGGCGGCGGTGGTGGCCGCGGCACCGGCAACGATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCTGCCACGTGGCCTGGTCCGGCTCTCAGCTGCCGCCTGCCGGCCCACTGCCAGCCGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGGCGACGGCGGGACGGCCGCCGCGGCGGTGATGCCCAGCTGCTTG-GCAACGGCGGTG
                                                            GGGCGTGGCGGCCGCCGCGG
                                                                                                                                                                                                                                                                 GGGGCACGGCGGCTGTTCGGCGCCCGGCGCACTGGCGGTGCTGGCGGCAGCAGCGGCGG
                                                                                                                                                                                                                                                                                                                                 GCCCCGCGGCCGACTTCTCCGTGTCGGTGGAGCGCGCTCTGGCTGC-----
                                                                                                                                                                                                                                                                                                                                                                                                     GETETTCGGCGCCGGCACCGGCGGGGGCGGCACGCTCGGCGCCGACGGCGGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ессалселенсе в примерения в п
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGGCGGGGCCGGGGGCCGGCGGGTTTGGCGCGAATGGCGGGAACCGGGGGAACGGATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGGGGGAGCTGACCGAGGCCACGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                <u>ACGGCGGGGCCGGCGGCCGGCCCCGCCGGGTTGGCGCTTCCCCCGGGGCCGGCGC</u>
   CGGCGGCGCCGGCAGCGG
                                                                                                                                CACCTTCGGCGGCAACGGCGGCAGCGGCCAACGCCGGCCTACTCGCCCTCGGCGCCTC
                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           °.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 60.2; DB 3
Pred. No. 0.0045;
       336996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches 113;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STRAIN ANALYSIS IN MYCOBACTERIUM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            positions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ω
~•
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               throughout
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 4403765;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              <u>ა</u>
                                                                                                                                                                                                                                                                                                                                         -CAAGCCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       625816
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        625756
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            625697
                                                                                                                                               337017
                                                                                                                                                                                                           343
                                                                                                                                                                                                                                                                                                                                            283
                                                                                                                                                                                                                                                                                                                                                                                                             337137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 337197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1
```

```
RESULT 10
US-08-690-473-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          멂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: FLEISCHMAN, Robert D.
APPLICANT: WHITE, Owen R.
APPLICANT: FRASER, Claire M.
APPLICANT: VENTER, John C.
TITLE OF INVENTION: DNA SEQUENCES FOR STRAIN
TITLE OF INVENTION: TUBERCULOSIS
TITLE REFERENCE: 24366-20007.00
CURRENT APPLICATION NUMBER: US/09/103,840A
CURRENT FILING DATE: 1998-06-24
NUMBER OF SEQ ID NOS: 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 1, Application US/08690473 Patent No. 5876923
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQ ID NO 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOFTWARE:
APPLICATION NUMBER: US/08/690,473
FILING DATE: 26-UUL-1996
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Highlander, Steven L.
REGISTRATION UNMBER: 37,642
REFERENCE/DOCKET NUMBER: ARCD:239
                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Leopardi,
APPLICANT: Roizman, F
TITLE OF INVENTION: F
TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TYPE: DNA
ORGANISM: Mycobacterium tuberculosis
OTHER INFORMATION: H37Rv
                                                                                                                      COMPUTER READABLE FORM:
MEDIUM TYPE: Ploppy disk
COMPUTER: Ploppy disk
COMPUTER: PLOPPY disk
COMPUTER: PLOPPY disk
COMPUTER: PATENT: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0,
CURRENT APPLICATION DATA:
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ENGTH: 4411529
                                                                                                                                                                                                                                                                                                                                                        CORRESPONDENCE ADDRESS
                                                                                                                                                                                                                                                                                                                                                                        NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        336927 CGGCGGCGCCGGCGGCAGCGG 336907
                                                                                                                                                                                                                                               COUNTRY: U.
                                                                                                                                                                                                                                                                                                   STREET: P.O. |
CITY: Houston
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          337167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Local Similarity 54.8
les 143; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                337107
                                                                                                                                                                                                                                                                                                                                       ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PatentIn Ver. 2.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CGGCGGGGCCGGCGGGCGGGCGGGTTTGGCGCGAATGGCGGGACCGGGGGGAACGGATT 337108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGGCGTGGCGGCCGCGGG 364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CACCTTCGGCGGCAACGGCGGCAGCGGCGAACGCCGGCCTACTCGCCCTCGGCGCCTC 336928
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCCCCGCCGACTTCTCCGTGTCGGTGGAGCGCGCTCTGGCTGC-----CAAGCCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTTGGACACCTACAGCCTGGGCGGCGGCGCGCGCGCGCGTGCGGGTGCGCGCTCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  еселселенствення в применя в применения в применения в применения в применения в применения в применения в при
                                                                                                                                                                                                                                                                                 Texas
                                                                                                                                                                                                                                                                                                                       E: Arnold, White & Durkee P.O. Box 4433
                                                                                                                                                                                                                                                               USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Leopardi,
                                                                                                                                                                                                                                                                                                                                                                                                                , Bernard
HERPES S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2.3%;
                                                                                                                                                                                                                                                                                                                                                                                              HERPES SIMPLEX VIRUS ICP4 AS AN INHIBITOR OF APOPTOSIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Rosario
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 60.2; DB 3
Pred. No. 0.0045;
0; Mismatches 11
                                                                                                                                                      Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STRAIN ANALYSIS IN MYCOBACTERIUM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 3;
                                                                                                                                                      #
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   113;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 4411529;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ຫ
~•
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         336988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  337048
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   μ
••
```

```
FILE REFERENCE: ARCD:317
CURRENT APPLICATION NUMBER: US/09/259,821A
CURRENT FILING DATE: 199-03-01
PRIOR APPLICATION NUMBER: 08/690,473
PRIOR FILING DATE: 1996-07-26
NUMBER OF SEQ ID NOS: 2
SOFTWARE: Patentin Ver. 2.1
SEQ ID NO 1
LENGTH: 4257
TYPE: DNA
ORGANISM: HERPES VIRUS, TYPE 1
US-09-259-821A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-09-259-821A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-08-690-473-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TELEPHONE: 512/418-3000
TELEPHONE: 512/474-7577
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 4257 base pairs
TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local S
Matches 205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 1, Application US/09259821A
Patent No. 6210926
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GENERAL INFORMATION:
Query Match 2.3
Best Local Similarity 47.7
Matches 205; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: LEOPARDI, ROSARIO
APPLICANT: ROIZMAN, BERNARD
TITLE OF INVENTION: HERPES SIMPLEX VIRUS ICP4
FILE REFERENCE: ARCD:317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STRANDEDNESS: Sir
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2045
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2105 GCTTCGACGGCGACC-TGGCGGCCGTCCCGGGGCTGGCCGGGCCCGGCCAGCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        205;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGCCTGCGCGCGTGGCTGCGCGAGCTGCGGTTCGTGCGCGACGCGCTGGTGCTCATGCGC 2283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCCGCGTGGCCGTCGAGTGCCTGGCCGCCTGCCGGGGATCCTGGAGGCGCTGGCCGAGG 2104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           евссевнеессевстветтельного в поставется в поставется в поставет в поставется в пост
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             eceeceecee 2473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               eccereccee 456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TCCGCGGCCGCCGCCGCCGGACCTGCTGTTTGACAACCAGAGCCTGCGCCCCCCTGCTG 2463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TICTGIGGCTGCCACGIGGCCTGGTCCGGCTCTCAGCTGCCGCCGGCCACTGCCA 446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGGGTGCGCGGCTCCACGGGCGTGGCGGCCGCCGCGGGGGCTGCACCGCTACCTGCGCGAC 386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCGCGGCGGAGGGACCCGCGGGGCCCGCTTCCCCGCGGCGCCGCACGCCGACGCGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGCAGGACTGAGACCATGGAGGCGGTGGCGGTGGCCGCGGCGGTGGGGGTCCTTCTCCTG 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 стеестесськессеесттескскосткскесстеессесессесесессессе
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        single
                                 2.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 59.6; DB 2;
Pred. No. 0.0013;
0; Mismatches 224;
   0; Mismatches
                             Score 59.6; DB 3; Pred. No. 0.0013;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        224;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AN INHIBITOR OF APOPTOSIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 4257;
                                                                      Length 4257;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ۲.
   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2163
```

```
Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 12
US-08-843-659-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
US-08-843-659-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 1, Application US/08843659
Patent No. 6218103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GENERAL INFORMATION:
APPLICANT: Leopar
APPLICANT: Roizma
                                                                                                                                                                                                           TELEPHONE: (512) 418-30
TELEFAX: (512) 474-7577
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IEM PC compatible
COMPUTER: PC-DOS/MS-DOS
COPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                       CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/843,659
FILING DATE: Concurrently Herewitl
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Highlander, Steven L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NUMBER OF SEQUENCES: 6
                                                                                                                                  SEQUENCE CHARACTERISTICS:
LENGTH: 4257 base pair
                                                                                                                                                                                                                                                                                                           TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PPLICANT: Leopardi, Roasrio
PPLICANT: Roizman, Bernard
TILE OF INVENTION: INHIBITORS OF APOPTOSIS

INHIBITORS OF APOPTOSIS
                                                                                                                                                                                                                                                                                                                                                      REGISTRATION NUMBER: 37,642
REFERENCE/DOCKET NUMBER: ARE
                              STRANDEDNESS:
TOPOLOGY: li
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2045
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2464 GCGGCGGCGG 2473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2224 CGCCTGCGCGCGTGGCTGCGCGAGCTGCGGTTCGTGCGCGACGCGCTGGTGCTCATGCGC 2283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Houston
                                                                                nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCGCGGCGGAGGGACCCGCGGGCCCGCTTCCCCGCCGCCGCCGCACGCCGACGCCGCCCC 2223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCTTCGACGGCGACC-TGGCGGCCGTCCCGGGGCTGGCCGGGGCCCGGCCAGCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCCGCGTGGCCGTCGAGTGCCTGGCCGCCTGCCGCGGATCCTGGAGGCGCTGGCCGAGG 2104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGGGTGCGCGCTCCACGGGCGTGGCGGCCGCCGCGGGCTGCACCGCTACCTGCGCGAC 386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTGCGCGGGACCTGCGCGTGGCCGGCGGCAGCGAGGCCGCCGTGGCCGTGCGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GIGGCCCGGCTGCTGGGGCCAGGCCCGCCGGCCGACTTCTCCGTGTCGGTGGAGCGCGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGCAGGACTGAGACCATGGAGGCGGTGGCGGTGGCCGCGGCGGTGGGGGGTCCTTCTCCTG 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          евссеваевссевстветтвенсевсевсевсение общее по в поставение общее общее общее общее общее общее общее общее обще
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCCGCGGCCGCCGCCGCGGACCTGCTGTTTGACAACCAGAGCCTGCGCCCCTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTCTGTGGCTGCCACGTGGCCTGGTCCGGCTCTCAGCTGCGCCGCCGCCGCCACTGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            споестоссья в сестовность стака в сестовность в сестовност
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         P.O. Box 4433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              United States
                                  linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Arnold,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Concurrently Herewith
                                                             single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         456
                                                                                                                                                                                                                                                                                    418-3000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            White & Durkee
                                                                                                                                                                                                                                                                                                                                                      ARSB:519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  266
```

```
Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 뮹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 13
US-08-458-568A-11/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           멂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 11, Application US/0845856BA Patent No. 5821339
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM FC compatible
COMPUTER: IBM FC COMPATIBLE
COMPUTER: BOOTHMS-DOS
SOFTWARE: WOOTHMS-TOOS
SOFTWARE: WOOTHMS-TOOS
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Schaffer, Priscilla A. APPLICANT: Yeh, Lily TITLE OF INVENTION: Compositions TITLE OF INVENTION: Infections
                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: US/08/458,568
FILING DATE: 02-UNUB-1995
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/065,146
FILING DATE: 05-MAY-1993
ATTORNEY/AGENT INFORMATION:
NAME: Leary Ph.D., Kathryn
REGISTRATION NUMBER: 36,317
REFERENCE/DOCKET NUMBER: DF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NUMBER OF SEQUENCES: 1: CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STREET: One biperty CITY: Philadelphia
                                                                                                                                                                                                                                                                                                                                                                         CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ADDRESSEE: Woodcock, Washburn, Kurtz, Mackiewicz & No. STREET: One Liberty Place, 46th floor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2105 GCTTCGACGGCGACC-TGGCGGCCGTCCCGGGGCTGGCCGGGCCCGGCCAGCCCC 2163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2045 GCCGCGTGGCCGTCGAGTGCCTGGCCGCCTGCCGCGGATCCTGGAGGCGCTGGCCGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       l Similarity
205; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                19103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGCCTGCGCGCGTGCGCGAGCTGCGGTTCGTGCGCGACGCGCTGGTGCTCATGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGCAGGACTGAGACCATGGAGGCGGTGGCGGTGGCGGTGGGGGGTCCTTCTCCTG 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 свезгососовстска с в предоставления п
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ствестессья в севесттвенся стаснесствение в севесение в
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ereccicedation de la constanta de la consta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCGGCGGCGG 2473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCCGTGCCGG 456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TCCGCGGCCGCCGCCGCGGACCTGCTGTTTGACAACCAGAGCCTGCGCCCCCCTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         graageerodreecededeceerodeceeroceerodecedaeeeroceerocero
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            crececeseaccrececereecescescesces decececes consecuences de centrales d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TICTGIGGCIGCCACGIGGCCIGGTCGGCCTCAGCTGCGCCTGCCGCCACTGCCA 446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PΑ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Compositions and Methods for Treatment of Herpesvirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US/08/458,568A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 59.6; DB 3; Pred. No. 0.0013;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches 224;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 4257;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             326
```

INFORMATION:

36,317

```
APPLICANT: BALLEY, JOHN.
APPLICANT: MULLEY, JOHN.
APPLICANT: MANDEL, Jean-Louis
APPLICANT: MANDEL, Jean-Louis
APPLICANT: EXTRIAD, Melanie April
APPLICANT: LYNCH, Michael
ITILE OF INVENTION: DNA SEQUENCES RELATED TO ISOLATED
ITILE OF INVENTION: FRAGILE X SYNDROME
ITILE OF SEQUENCES: 13
                                                                                                                                                                                                                                                                                                                                             RESULT 14
US-08-118-200-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; STRAIN: H
US-08-458-568A-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MOLECUMA
HYPOTHETICAL: NO
ANTI-SENSE: NO
ORIGINAL SOURCE:
ORGANISM: Herpes simplex virus
ORGANISM: Herpes Simplex Virus Type 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TELEFAX: (215) 568-3439
INFORMATION FOR SEQ ID NO: 11:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                   GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TOPOLOGY: linear MOLECULE TYPE: DNA MOLECULE TYPE: DNA
                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TELEPHONE:
                                                                                                                                                                                                                                                                                                                ce 1, Application US/08118200
No. 6197500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4629 GCCGCGTGGCCGTCGAGTGCCTGGCCGGCCGGGGATCCTGGAGGCGCTGGCCGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        147
                                                                                                                                                                                                                                                                                                                                                                                                                                              447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 205;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 27 GECCEGAGECCEGCAGCTGATTGGACGCGGGCCGCCCCACCCCCTGGCCGTCGCCGGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            i: 12001 base pairs nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTGAGCCTGGTCGCCGGGGCCCTGGGCCCCGCGCGCGCGGGACCCGCGCCTGCCAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ceegracececorocaceecereececececececeeecracecacecracecraceceaec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGCCTGCGCGTGGCTGCGCGAGCTGCGGTTCGTGCGCGACGCGCTGGTGCTCATGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCGCGGCCGAGGGACCCGCGGGGGCCCCGCTTCCCCCGCCGCCGCACGCCGACGCGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGCAGGACTGAGACCATGGAGGCGGTGGCGGTGGCCGCGGCGGTGGGGGGTCCTTCTCCTG 146
                                                                                                                                                                                                                                                                                                                                                                                                                                              GCCGTGCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TCCGCGGCCGCCGCCGCCGACCTGCTGTTTGACAACCAGAGCCTGCGCCCCCTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTGCGCGGGGACCTGCGCGTGGCCGGCGGCAGCGAGGCCGCCGTGGCCGCCGTGCGCGCC 4331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTGGCCCGGCTGCTGGGGCCAGGCCCCGCGGCCGACTTCTCCGTGTCGGTGGAGCGCGCT 266
                                                                                                                                                                                                                                           RICHARDS, Robert 1
SCHLESSINGER, David
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                   NAGARAJA, Ramaiah
KREMER, Eric J
                                                                                                                                                                                                                                                                                  SUTHERLAND,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (215)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            double
                                                                                                                                                                                                                                                                                                                                                                                                                                             456
                                                                                                                                                                                                                                                                                                                                                                                                              4201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        568-3100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2.3%; Score 59.6; DB 1
47.7%; Pred. No. 0.0016;
                                                                                                                                                                                                                                                                                Grant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 1; Length 12001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 224; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 98
```

RESULT 15 US-08-458-745-1

; Sequence 1, App; Patent No. 6242; GENERAL INFORM; APPLICANT:

INFORMATION:

Application US/08458745

APPLICANT:

SUTHERLAND, Grant R RICHARDS, Robert I SCHLESSINGER, David NAGARAJA, Ramaiah

APPLICANT:

NAGARAJA, Rama: KREMER, Eric J YU, Sui

APPLICANT APPLICANT

BAKER, Elizabeth MULLEY, John C

```
밁
                                                                                           Ś
밁
                           8
                                                                                                                            밁
                                                                                                                                                        S
                                                                                                                                                                                                                                                            US-08-118-200-1
                                                                                                                                                                                         Query Match 2.3%;
Best Local Similarity 59.2%;
Matches 100; Conservative
                                                                                                                                                                                                                                                                                                                                                                           TELEFAX: (703) 836-20 INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                          TOPOLOGY: 1
MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                     SEQUENCE CHARACTERISTICS:
LENGTH: 1028 base pairs
TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                       REGISTRATION NUMBER: 36,113
REFERENCE/DOCKET NUMBER: 02
TELECOMMUNICATION INFORMATION:
TELEPHONE: (703) 836-6620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FILING DATE: 05-DEC-1991
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/672,232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/802,650
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: US 0: FILING DATE: 04-JAN-1991 PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE: 20-MAR-1991
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOFTWARE: PatentIn Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                        STRANDEDNESS: SII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STREET: P.O. Box
CITY: Alexandria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COUNTRY: United ZIP: 22313-1404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: FILING DATE: 23-DEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ADDRESSEE:
460
                               190
                                                              400
                                                                                                                            340
                                                                                                                                                           70
                                                                                                                            CTGGCCGTCGCGGGACCCGCAGGACTGAGACCATGGAGGCGGTGGCGGTGGCCGCGGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Crane-Feury, Sharon
                               CGGCCGTGCGGGCTCGTGGCCCGGCTGCTGGGGCCAGGCCCCGCGGC 238
                                                                TGGGGGTCCTTCTCCTGGCCGGGGCCGGGGGCGCCGGCAGGCCGAGGCCCGGGAGGCGG 189
CGGCGGCGGCGGCCCGGAGCCACCTCTTCGGGGGCGGCCTCCCGGC 508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Virginia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 E: BURNS, DOANE, SWECKER & MATHIS P.O. Box 1404
                                                                                                                                                                                                                                                                                                                                                                                            (703)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      09-SEP-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Floppy disk
                                                                                                                                                                                                                                                                          DNA (genomic)
                                                                                                                                                                                                                                                                                                        single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         23-DEC-1992
                                                                                                                                                                                                                                                                                                                                                                                         836-2021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US 07/966,517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US 07/638,518
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US/08/118,200
                                                                                                                                                                                          Score 58.6; DB 3
Pred. No. 0.0015;
0; Mismatches 6
                                                                                                                                                                                                                                                                                                                                                                                                                                           020160-164
                                                                                                                                                                                          69;
                                                                                                                                                                                                                          ω
                                                                                                                                                                                                                        Length 1028;
                                                                                                                                                                                            Indels
                                                                                                                                                                                            0
                                                                                                                                                                                            Gaps
                                                                                                                                                             129
                                                                459
                                                                                                                              399
                                                                                                                                                                                            0,
```

```
TELEPAX: (703) 836-2021
; INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
ELENCTH: 1028 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: DNA (genomic)
US-08-458-745-1
Search completed: February 13, 2004, 13:34:51
Job time : 179 secs
                                                                                                                                  Ś
                                                                                                                                                                               돲
                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                     Query Match 2.3%; Score 58.6; DB 3; Length 1028; Best Local Similarity 59.2%; Pred. No. 0.0015; Matches 100; Conservative 0; Mismatches 69; Indels 0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: US/08/458,745
FILING DATE: 02-UUN-1995
CLASSIFICATION: 530
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/118,200
FILING DATE: 09-SEP-1993
APPLICATION NUMBER: US 07/802,650
FILING DATE: 05-DEC-1991
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/672,232
FILING DATE: 20-MAR-1991
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/672,232
FILING DATE: 20-MAR-1991
PRIOR APPLICATION DATA:
APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COUNTRY: United States
ZIP: 22313-1404
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE OF INVENTION: DNA SEQUENCES RELATED TO ISOLATED TITLE OF INVENTION: FRAGILE X SYNDROME NUMBER OF SEQUENCES: 13

CORRESPONDENCE ADDRESS:
ADDRESSE: BURNS, DOANE, SWECKER & MATHIS STREET: P.O. BOX 1404

CITY: Alexandria
STATE: Virginia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME: Crane-Feury, Sharon E
REGISTRATION NUMBER: 36,113
REFERENCE/DOCKET NUMBER: 020160-164
TELECOMMUNICATION INFORMATION:
TELEPHONE: (703) 836-6620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: US 07/638,518 FILING DATE: 04-JAN-1991 PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: US 07/966,517 FILING DATE: 23-DEC-1992
                                                                                          460
                                                                                                                                  190
                                                                                                                                                                               400
                                                                                                                                                                                                                          130 ТОССЕСТТСТССТСОССОВОВОССОВОССОССОССАСОВОСОВАСОВОСССОВОВАЕВСЕВ 189
                                                                                                                                                                                                                                                                    70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Virginia
/: United States
                                                                                            CGGCGGCGGCGGCCCCGGAGCCACCTCTTCGGGGGCCGGGCTCCCGGC 508
                                                                                                                                                                               MANDEL, Jean-Louis
PRITCHARD, Melanie April
LYNCH, Michael
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NUMBER: US/08/458,745
02-JUN-1995
                                                                                                                                                                                    459
                                                                                                                                                                                                                                                                    399
                                                                                                                                                                                                                                                                                                                                                          0
```

```
Minimum
Maximum
                                                                                                                                                                                                                                                                                                                                                       Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Total number of hits satisfying
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OM nucleic -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Post-processing:
                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    알
::
                                                                                                                                                                                                                                                                                                                                                                                                                                       Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB
BC
                                       142675
12675
12676
4856.6
4856.6
4566.6
4566.6
4566.6
1683.6
1883.4
1883.4
                                                                                                                                                                                                                                                                                                                                      Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       nucleic search, using
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Published Applications NA:*

1: /cgn2 6/ptodata/1/pubpna/US07_PUBCOMB.seq:*

2: /cgn2 6/ptodata/1/pubpna/US06_NEW_PUB.seq:*

3: /cgn2 6/ptodata/1/pubpna/US06_NEW_PUB.seq:*

3: /cgn2 6/ptodata/1/pubpna/US06_NEW_PUB.seq:*

4: /cgn2 6/ptodata/1/pubpna/US07_NEW_PUB.seq:*

6: /cgn2 6/ptodata/1/pubpna/US08_NEW_PUB.seq:*

7: /cgn2 6/ptodata/1/pubpna/US08_NEW_PUB.seq:*

8: /cgn2 6/ptodata/1/pubpna/US08_PUBCOMB.seq:*

9: /cgn2 6/ptodata/1/pubpna/US08_PUBCOMB.seq:*

9: /cgn2 6/ptodata/1/pubpna/US09A_PUBCOMB.seq:*

10: /cgn2 6/ptodata/1/pubpna/US09A_PUBCOMB.seq:*

11: /cgn2 6/ptodata/1/pubpna/US09A_PUBCOMB.seq:*

12: /cgn2 6/ptodata/1/pubpna/US09A_PUBCOMB.seq:*

13: /cgn2 6/ptodata/1/pubpna/US09_NEW_PUB.seq:*

14: /cgn2 6/ptodata/1/pubpna/US09_NEW_PUB.seq:*

15: /cgn2 6/ptodata/1/pubpna/US09_NEW_PUB.seq:*

16: /cgn2 6/ptodata/1/pubpna/US08_PUBCOMB.seq:*

16: /cgn2 6/ptodata/1/pubpna/US08_NEW_PUB.seq:*

17: /cgn2 6/ptodata/1/pubpna/US08_NEW_PUB.seq:*

16: /cgn2 6/ptodata/1/pubpna/US08_NEW_PUB.seq:*

17: /cgn2 6/ptodata/1/pubpna/US08_NEW_PUB.seq:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             length: 0
length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     February 13, 2004, 12:03:44; Search time 890 Seconds (without alignments)
10657.701 Million cell updates/sec
                                                                                                                                                                                                                                                                                          100.0
                                                                                                                                                                                                                                                                                                                                      Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2449703 segs, 1841816367 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-09-836-613-1
2575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                   16.
15.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCCGGGCTTAGCCTTCGGGT.....AGTCGAGCGGCCGCGAATTC 2575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GenCore version 5.1.6
Copyright (c) 1993 - 2004 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                 Length DB
                                            9025608
                                                                                                   10380
1211
2796
2796
808
808
808
499
522
                                                                                                                                                                                                                                                                                          2575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           _6/ptodata/1/pubpna/US60_PUBCOMB.seq:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           chosen parameters:
                                                         US-10-029-386-22784
US-10-027-632-111960
US-10-027-632-141597
US-10-027-632-141597
US-00-027-632-141597
US-09-918-995-30489
US-09-918-995-30489
US-09-918-995-24382
US-09-918-995-24382
US-09-918-995-24382
US-09-918-995-24382
US-09-918-995-24382
US-09-918-995-24382
                                                                                                                                                                                                                                                                                                                                      ij
                      US-10-156-761-1
US-10-156-761-5965
                                                                                                                                                                                                                                                                        US-09-836-613-
                                                                                                                                                                                                                                                                                          US-09-836-613-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         sw model
                                                                                                                                                                                                                                                                                                                                                                                                 SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4899406
                                                                                                                                                                                                                                                                                                                                    Description
                   Sequence 1, App
Sequence 3, App
Sequence 27784,
Sequence 111960
Sequence 111960
Sequence 141597
Sequence 9071,
Sequence 24382,
Sequence 24382,
Sequence 21830,
Sequence
               Re 111567,
Re 141597,
Re 30489, A
Re 30489, A
Re 9071, Ap
Re 24382, A
Re 24382, A
Re 24382, A
Re 24382, A
Re 26302, Ap
Re 1, Appli
```

a	a	O	Ω	ი	ი	ი	O	Ω	ი	ი	Ω	ი	Ω	ი	ດ	Ω	a	a						ი	ი			
4 4 5 4	43	42	41	40	39	38	37	36	35	34	ω ω	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16
64.4	4	64.4	4	64.4	.4	4	64.4	4.	4.	4.	4.	٥.	68.2	8	8		8	œ	9	9	70		70.4	71	Ñ	ũ	73.6	88
N N 51 51											•	თ					•							•		·	·	
154746 154746	242	242	242	242	22	95	95	5	61	13	5	ű	48	27	99	56	U	95	165	9	014	17	17	2	2	574	1181	20
13 13	14	14	12	10	13	13	13	14	14	12	10	14	15	13	14	14	12	10	12	12	10	15	10	11	13	15	15	12
-09-827-688- -09-827-688-	23-	-10-023-529-5	-10-616-187-	-09-976-740-	-10-141-541-	-10-237-551-19	-10-200-562-	-10-023-523-4	-10-023-529-4	-10-616-187-4	-09-976-740-4	-10-095-407-1	-10-205-823-13	-10-101-510-1	-10-023-523-4	-10-023-529-	-10-616-187-4	-09-976-740-4	-10-154-884	-10-057-475B-1047	-09-880-107-21	-10-171-581-1	9-880-107-33	-09-796-679-	-386-250	S-10-156-761-1510	-10-156-761-288	0-238-90
Sequence 8, Appli Sequence 8, Appli	equence 50,	equence 50,	equence 50,	equence 50,	equence 3, Appl	equence 193	equence 193, Ap	equence 45,	equence 45, App	equence 45,	equence 45, App	equence 16, App	equence 139	equence 133, Ap	equence 48, App	equence 48,	equence 48, App	equence 48,	equence 10475,	equence 10475,	equence 2168, A	equence 159, Ap	equence 3356, A	equence 5, Appl	equence 25041,	equence 15102,	884	equence 900, Ap

ALIGNMENTS

RESULT 1

US-09-336-613-1
Sequence 1, Application US/09836613
Publication No. US20030039643A1
GENERAL INFORMATION:
APPLICANT HOPWOOD, JOHN JOSEPH; SCOTT, HAMISH STEELE;
APPLICANT HOPWOOD, JOHN JOSEPH; SCOTT, HAMISH STEELE;
APPLICANT HOPWOOD, JOHN JOSEPH; SCOTT, HAMISH STEELE;
APPLICANT HOPWOOD, JOHN JOSEPH; SANSON, DONALD STEWART
TITLE OF INVENTION: SYNTHETIC MAMMALIAN
N-ACETYLCLUCCSAMINIDASE AND GENETIC SEQUENCES:
ENCOURS:
NUMBER OF SEQUENCES:
ENCOLING SAME
NUMBER OF SEQUENCES:
ADDRESSE: NIXON PEABODY LLP
STREET: 990 STEWART AVENUE
CITY: GARDEN CITY
STREET: 990 STEWART AVENUE
CITY: GARDEN CITY
STREET: STEWART AVENUE
COMPUTER: IS STEME: PLOSE SOFTMARE: PATENTIN FLORES WIS POOS
SOFTMARE: PATENTIN RELEASE #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/836,613
FILING DATE: 22-NOV-1996
ATTORNEY/AGENT INFORMATION:
REGISTRATION NUMBER: 34,697
REFERENCE/DOCKET NUMBER: 3249/104
TELECOMMUNICATION NUMBER: 3249/104
TELECOMMUNICATION INFORMATION:
TELEPHONE: 516 742 4343
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:

1 ACCGGGTCCTGGACCAGATGCGCTCCTTCGGCATGACCCCAGTGCTGCCTGC	QY 721 TGCACACCTGGGATGGCCCCCTGCCCCCCTGGCACATCAAGCAGCTTTACCTGCAGC 780	OY 661 CAGAGATCAATGAGTTCTTTACTGGTCCTTCCTGGCCTGGGGGGGG	QY 601 CCTGGAGCGGCCAGGAGGCCATCTGGCAGCGGGTGTACCTGGCCTTGGGCCTGACCCAGG 660	QY 541 GGGCCCGCTGGGAGAGATAGACTGGATGGCTGAATGGCATCAACCTGGCACTGG 600	QY 481 ACAGGTACCGCTATTACCAGAATGTGTGCACGCAAAGCTACTCCTTCGTGTGGGGACT 540	QY 421 AGCTGCGCCTGCCGGGCCACTGCCAGCCGTGCCGGGGAGCTGACCGAGGCCACGCCCA 480	CY 361 CGGGGCTGCACCGCTACCTGCGCGACTTCTGTGGCTGCCACGTGGCCTGGTCCGGCTCTC 420	QY 301 TGGGCGGCGGCGGCGCGCGCGCGTGCGGGTGCGGGTTCCACGGGCTTGGCGGCGCCCCC 360 Db 301 TGGGCGGCGCGCGCGCGCGCGCGCGTGCCGGCTCCACGGGCTCGCCGTGGCGGCCGCCG 360	241 ACTTCTCCGTGTCGGTGGAGCGCGCTCTGGCTAAGCCGGGCTTGGACACCTACAGCC 300	Oy 181 GGGAAGCGGCCGTGCGGGCGCTCCTGGGCCCGGCTGCTGGGGCCCACGGCCCGCCGGCCG	QY 121 CCGCGGCGGTGGGGGTCCTTCTCCTGGCCGGGGGCCGGGGGG	QY 61 CCCCACCCCTGGCCGTCGCGGGACCCGCAGGACTATGGAGGCGATGGCGGTGG 120	OY 1 CCCGGGCTTAGCCTTCGGGTCCACGTGGCCGGAGGCCGGCAGCTGATTGGACGCGGGCCG 60 1 CCCGGGCTTAGCCTTCGGGTCCACGTGGCCGGAGGCCGGAGCTGATTGGACGCGGGCCG 60	Query Match 100.0%; Score 2575; DB 11; Length 2575; Best Local Similarity 100.0%; Pred. No. 0; Matches 2575; Conservative 0; Mismatches 0; Indels 0; Gaps 0;	NAME/KEY: CDS; LOCATION: 1022330; SEQUENCE DESCRIPTION: SEQ ID NO: 1: US-09-836-613-1	ORGANISM: Homo sapiens TISSUE TYPE: Peripheral Blood CELL TYPE: Leukocyte FEATURE:	STRANDENDESS: single TOPOLOGY: linear MOLECULE TYPE: CDNA ORTGINAL SOURCE:	LENGTH: 2575 base pairs
סט פע	D 4) D 4	S B &	9 dg) B &	λ 4g ξ	dd Ag	Db X	S B S	g 42	g &	g 42	당 당 당	D QY	Db Qy	рь	Qy db	ф В
1861 AGCTGGCCTCCCTGTTGAAGGCTCGAAGGCGTCCTGGCCTATGAACTGCTGCCGGCACTGG 1920	CAST CASTACT TO CAST THE CAST TAX TO CAST TAX TAX TAX TAX TAX TAX TAX TAX TAX TA	CACTOCACCACCACCACCACCACCACCACCACCACCACCACCAC		21 AGECTECHOSES CACAMICETAGECEGE USE TO CONSCION TO THE TOTAL TOTAL THE TOTAL T	ACCOMMANGEMENTAL METAL	ol castgccasatrtggcasccriggstgaccascrittscccsccsdstatesestriccc ol castgcascatrtggcasccriggstgaccascrittscccsccsstatesestriccc ol castgcascascriggstgaccascrittscccscccscsratesestriccc	41 GCATCAGCCAGAACGAAGTGGTCTATTCCCTCATGGCTGAGCTGGGCTGGCGAAAGGACC 150 41 GCATCAGCCAGAACGAAGTGGTCTATTCCCTCATGGCTGAGCTGGGCTGGCGAAAGGACC 150	B1 CAGAAGCTGCCCCCTTCCCCAACTCCACCATGGTAGGCACGGGCATGGCCCCCCGAGG	1321 TGCACAACTTTGGGGGAAACCATGGTCTTTTTGGAGCCCCTAGAAGCCTGTGAACGGGGGAGGCC 1380 11321 TGCACAACTTTGGGGGGAAACCATGGTCTTTTTGGAGCCCCTAGAAGCCTGTGAACGGAGGCC 1380 1381 CAGAAGTTGGCCCGCGTCTTTTCCACCTTTTTGGAGCACGAGGGCATGGCCCCCGAGG 1440	or accepting the control of the cont	GGGCTGTGGGGGGGTGGGGGGGGGGGGGGGGGGGGGGG	THE CONTRACT PROPERTY OF THE CONTRACT PROPERTY PROPE	TIGCGGGAGCCACCACTGCGTCIATGAGGCCAIGACTGCAGTGGAIAACTGAGGCTGTGI	ACATCTATGGGGCGACACTTTCAATGAGATGCAGCCACCTTCCTAGAGCCCTCCTACC	1 TATTCCCCATCATCGGGAGCCTCTTCCTGCGAGAGCTGATCAAAGAGTTTGGCACAGACC 102	901 GTTGGGGCCACTTTAACTGTTCCTACTCCTGCTCCTTCCT	841 GGCATGITCCCGAGGCTGTCACCAGGGTGTTCCCTCAGGTCAATGTCACGAAGATGGGCA 900	781 ACCGGGTCCTGGACCAGATGCGCTCCTTCGGCATGACCCCCAGTGCTGCCTGC

S 밁 Ś 뮍 Ś

2101 2101

```
RESULT 2
US-09-836-613-3
; Sequence 3, Application US/09836613
; Sequence 3, Explication US/09836613
; Publication No. US20030039643A1
; GENERAL INFORMATION:
; GENERAL INFORMATION: JOHN JOSEPH; SCOTT, HAMISH STEELE;
APPLICANT: HOPWOOD, JOHN JOSEPH; SCOTT, HAMISH STEELE;
; WEBBER, BIRGIT; BLANCH, LIANNE; ANSON, DONALD STEWART
; TITLE OF INVENTION: SYNTHETIC MAMMALIAN
N-ACETYLGLUCOSAMINIDASE AND GENETIC SEQUENCES
FNCODING SAME
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Batentin Release #1.0, Version
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/836,613
FILING DATE: 17-Apr-2001
PRIOR APPLICATION DATA:
                                                                                                                                      ZIP: 11530
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                      CORRESPONDENCE ADDRESS:
ADDRESSEE: NIXON PEABODY LLP
STREET: 990 STEWART AVENUE
CITY: GARDEN CITY
STATE: NEW YORK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCCAGGGCATCCCTTTCCAACAGCACCAGTTTGACAAAAATGTCTTCCAACTGGAGCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGGCCAACTACTACACCCCTCGCTGGCGGCGTTTTCCTGGAGGCGCTGGTTGACAGTGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACGAGGTGCTGGCTAGTGACAGCCGCTTCTTGCTGGGCAGCTGGCTAGAGCAGGCCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CAGACATCACAGGATAACCCAGGCCTGGGAGGAGGCCCCACGGCCTGCTGGTGGGGGTCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCCACCACTGGGCCTTGTTTTCCGCTAATTCCAGGGCAGATTCCAGGGCCCAGAGCCTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCTTCGTTCTCAGCAAGCAGAGGTACCCCAGCCAGCCGCGAGGAGACACTGTGGACCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CAGCGGCAGTCAGTGAGGCCGAGGCGATTTCTACGAGCAGAACAGCCGCTACCAGCTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGTACTGTTTTCCTTTCCACTTAAAAAAAAAAAAAAAGTCGAGCGGCCGCGAATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCAAGAAGATCTTCCTCAAATATTACCCCGGCTGGGTGGCCGGCTCTTGGTGATAGATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCAAGAAGATCTTCCTCAAATATTACCCCGGCTGGGTGGCCGGCTCTTGGTGATAGATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGGCCAACTACACCCCTCGCTGGCGGCTTTTCCTGGAGGCGCTGGTTGACAGTGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCTTGTGGGGGCCAGAAGGCAACATCCTGGACTATGCCAACAAGCAGCTGGCGGGGTTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CAGCGGCAGTCAGTGAGGCCGAGGCCGATTTCTACGAGCAGAACAGCCGCTACCAGCTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACGAGGTGCTGGCTAGTGACAGCCGCTTCTTGCTGGGCAGCTGGCTAGAGCAGGCCCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCTGGGGGGATTGGAGGGAAATGACCTGCCCTCCACCACCACCCAAAGTGTGGGATTAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCCACCACTGGGCCTTGTTTTCCGCTAATTCCAGGGCAGATTCCAGGGCCCAGAGCTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCCAGGGCATCCCTTTCCAACAGCACCAGTTTGACAAAAATGTCTTCCAACTGGAGCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCTTGTGGGGGGCCAGAAGGCAACATCCTGGACTATGCCAACAAGCAGCTGGCGGGGTTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CAGACATCACAGGATAACCCAGGCCTGGGAGGAGGCCCCACGGCCTGCTGGTGGGGTCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCTTCGTTCTCAGCAAGCAGAGGTACCCCAGCCAGCCGCGAGGAGACACTGTGGACCTGG
                                                                                                                                                                                                     COUNTRY: UNITED STATES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1980
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2400
                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; FEATURE:
; NAME/KEY: exon 6
; LOCATION: 7745.8955
; SEQUENCE DESCRIPTION: SEQ ID NO: US-09-836-613-3
                                                           Ś
                                                                                                    밁
                                                                                                                                      δ
                                                                                                                                                                                밁
                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 55.4
Best Local Similarity 99.7
Matches 1429; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REGISTRATION NUMBER: 34,697
REFERENCE/DOCKET NUMBER: 22
TELECOMPUNICATION INFORMATION:
TELEPHONE: 516 742 4343
TELEPHONE: 516 742 4343
INFORMATION FOR SEQ ID NO: 3:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LENGTH: 10380 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: DNA (genomic)
ORIGINAL SOURCE:
ORGANISM: Homo sapiens
POSITION IN GENOME:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: PCT/US96/00747
FILING DATE: 22-NOV-1996
ATTORNEY/AGENT INFORMATION:
NAME: POKALSKY, ANN R.
                         8094
                                                                                                                                                                                7974
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         7734
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURE:
                                                                                                                                                                                                                         1352
                                                                                                                                                                                                                                                               7914
                                                                                                                                                                                                                                                                                                       1292
                                                                                                                                                                                                                                                                                                                                                                                    1232
                                                                                                                                                                                                                                                                                                                                                                                                                            7794
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURE
                                                                                                                                      CATGGTAGGCACGGGCATGGCCCCCGAGGGCATCAGCCAGAACGAAGTGGTCTATTCCCT
                                                                                                                                                                                                            TGGAGCCCTAGAGGCTGTGAACGGAGGCCCAGAAGCTGCCCGCCTCTTCCCCCAACTCCAC 1411
                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCCGCAGTTCTGGGGGCCCCGCCCAGATCAGGGCTGTGCCTGGGAGCTGTGCCCCCGTGGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME/KEY:
LOCATION:
                         CATGGCTGAGCTGGCGAAAAGGACCCAGTGCCAGATTTGGCAGCCTGGGTGACCAG
                                                       CATGGCTGAGCTGGGCTGGCGAAAAGGACCCAGTGCCAGATTTGGCAGCCTGGGTGACCAG
                                                                                                                                                                                                                                                                 CCAGGGCCAGCCCTTCATCTGGTGCATGCTGCACAACTTTGGGGGAAACCATGGTCTTTT
                                                                                                                                                                                                                                                                                                                                           CCTCCTGGTTCTGGACCTGTTTGCTGAGAGCCAGCCTGTGTATACCCCGCACTGCCTCCTT
                                                                                                                                                                                                                                                                                                                                                                                CCTCCTGGTTCTGGACCTGTTTGCTGAGAGCCAGCCTGTGTATACCCGCACTGCCTCTT
                                                                                                                                                                                                                                                                                                                                                                                                                            GCCGCAGTTCTGGGGGGCCCGCCCAGATCAGGGCTGTGCTGGGAGCTGTGCCCCGTGGCCG
                                                                                                      CATGGTAGGCACGGGCATGGCCCCCGAGGGCATCAGCCAGAACGAAGTGGTCTATTCCCT
                                                                                                                                                                                  TGGAGCCCTAGAGGCTGTGAACGGAGGCCCAGAAGCTGCCCGCCT
                                                                                                                                                                                                                                                                                                   CCAGGGCCAGCCCTTCATCTGGTGCATGCTGCACAACTTTGGGGGAAACCATGGTCTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CHROMOSOME/SEGMENT: Chromosome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                OCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         exon 3
3056..3202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   exon 2
2115..2262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              exon 1
990..1372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      exon 5
5667..5923
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         55.4%;
99.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                exon 4
3387..3472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ; Score 1426.6;
; Pred. No. 0;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2249/104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 11; Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                      1291
                         8153
                                                               1531
                                                                                                                                              1471
                                                                                                                                                                                       8033
                                                                                                                                                                                                                                                                   7973
                                                                                                                                                                                                                                                                                                       1351
                                                                                                                                                                                                                                                                                                                                                7913
                                                                                                                                                                                                                                                                                                                                                                                                                              7853
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             7793
                                                                                                          8093
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
```

뮍 5 밁 S 밁 Ś 밁 Š 뮍 δ 뮍 Ş 맑 Ş

```
RESUL-13
US-10-09-386-22784
; Sequence 22784, Application US/10029386
; Publication No. US20030194704A1
                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                              B;
                                                                                                                                                                                                                                                                                                                                                                                   멍
                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             당
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                         5
                                                                                                밁
                                                                                                                δ
                                                                                                                                    유
                                                                                                                                                                                             8
                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                        문
                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                당
                                                                                                                                                                                                                                                                                                                                                          5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  뮍
                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                1952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1772
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1652
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8154
                                                                                                                     2432
                                                                                                                                         8994
                                                                                                                                                                                8934
                                                                                                                                                                                                                        8874
                                                                                                                                                                                                                                                               8814
                                                                                                                                                                                                                                                                                                       8754
                                                                                                                                                                                                                                                                                                                                              8694
                                                                                                                                                                                                                                                                                                                                                                                                                             8574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1832
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1532
                                                                                                                                                                                                    2312
                                                                                                                                                                                                                                           2252
                                                                                                                                                                                                                                                                                                                                                                  2072
                                                                                                                                                                                                                                                                                                                                                                                                         2012
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTTTGCCGCCGGCGGTATGGGGTCTCCCACCCGGACGCAGGGGCAGCGTGGAGGCTACT
                                                                                                                                         CAGGGCAGATTCCAGGGCCCAGAGCTGGACAGACATCACAGGATAACCCAGGCCTGGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                            CCTGGCCTATGAGCTGCTGCCGGCACTGGACGAGGTGCTGGCTAGTGACAGCCGCTTCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CTACGACCTGCTGGACCTCACTCGGCAGGCAGTGCAGGAGCTGGTCAGCTTGTACTATGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGTCAGGCGGCCGTCCCTACAGATGAATACCAGCATCTGGTACAACCGATCTGATGTGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCTCCGGAGTGTGTACAACTGCTCCGGGGAGGCCTGCAGGGGCCACAATCGTAGCCCGCT
                                                                                                                                                                                                                                                                           TTTCCTGGAGGCGCTGGTTGACAGTGTGGGCCCAGGGCATCCCTTTCCAACAGCACCAGTT
                                                                                                                                                                                                                                                                                                                                                           CTATGCCAACAAGCAGCTGGCGGGGTTGGTGGCCAACTACTACACCCCCTCGCTGGCGGCT
                                                                                                                                                                                                                                                                                                                                                                                                  CTACGAGCAGAACAGCCGCTACCAGCTGACCTTGTGGGGGCCAGAAGGCAACATCCTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGAGGCAAGAAGCGCCTACCTGAGCAAGGAGCTGGCCTCCCTGTTGAGGGCTGGAGGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTACGACCTGCTGGACCTCACTCGGCAGGCAGTGCAGGAGCTGGTCAGCTTGTACTATGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TGAGGCCTGGCGGCTGCTCACATCTGCTCCCTCCCTGGCCACCAGCCCGCCTTCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCTCCGGAGTGTACAACTGCTCCGGGGAGGCCTGCAGGGGGCCACAATCGTAGCCCGCT
                                                                        GAGGCCCCACGGCCTGCTGGTGGGGGTCTGACCTGGGGGGGATTGGAGGGAAATGACCTGCC
                                                                                                               GAGGCCCCACGGCCTGGTGGGGGTCTGACCTGGGGGGATTGGAGGGAAATGACCTGCC
                                                                                                                                                                                CTGGGTGGCCGGCTCTTGGTGATAGATTCGCCACCACTGGGCCTTGTTTTCCGCTAATTC
                                                                                                                                                                                             CIGGGIGGCCGGCTCIIGGIGATAGATICGCCACIGGGCCIIGIITITCCGCIAAIIC
                                                                                                                                                                                                                        CCAGCCGCGAGGAGACACTGTGGACCTGGCCAAGAAGATCTTCCTCAAATATTACCCCGG
                                                                                                                                                                                                                                   CCAGCCGCGAGGAGACACTGTGGACCTGGCCAAGAAGATCTTCCTCAAATATTTACCCCGG
                                                                                                                                                                                                                                                                CTATGCCAACAAGCAGCTGGCGGGGTTGGTGGCCAACTACTACACCCCTCGCTGGCGGCT
                                                                                                                                                                                                                                                                                                                                                                                     CTACGAGCAGAACAGCCGCTACCAGCTGACCTTGTGGGGGGCCAGAAGGCAACATCCTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCTGGCCTATGAGCTGCTGCCGGCACTGGACGAGGTGCTGGCTAGTGACAGCCGCTTCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGAGGCAAGAAGCGCCTACCTGAGCAAGGAGCTGGCCTCCCTGTTGAGGGCTGGAGGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGTCAGGCGGCCGTCCCTACAGATGAATACCAGCATCTGGTACAACCGATCTGATGTGTT
                                                                                                                                                                                                                                                                                                      GGAGGCGCTGGTTGACAGTGTGGCCCAGGGCATCCCTTTCCAACAGCACCAGTT
                                                             9166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1831
                                                                                                                                                                                                                                                              8873
                                                                                                                                                                                                                                                                                                                                                                                       8693
                                                                                                                                                                                                                                                                                                                                                                                                         2071
                                                                                                                                                                                                                                                                                                                                                                                                                              8633
                                                                                                                                                                                                                                                                                                                                                                                                                                                 2011
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1951
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8513
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1891
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1651
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1591
                                                                                                                                                             2431
                                                                                                                                                                                                                                                                                                       8813
                                                                                                                                                                                                                                                                                                                                               8753
                                                                                                                                                                                                                                                                                                                                                                  2131
                                                                                                    9113
                                                                                                                      2491
                                                                                                                                          9053
                                                                                                                                                                                  8993
                                                                                                                                                                                                    2371
                                                                                                                                                                                                                         8933
                                                                                                                                                                                                                                            2311
                                                                                                                                                                                                                                                                                    2251
                                                                                                                                                                                                                                                                                                                         2191
                                                                                                                                                                                                                                                                                                                                            Ś
                5
                                       밁
                                                     S
                                                                             밁
                                                                                             Ś
                                                                                                                    문
                                                                                                                                   δ
                                                                                                                                                           g
                                                                                                                                                                           S
                                                                                                                                                                                              밁
                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
```

```
OTHER INFORMATION: M.
OTHER INFORMATION: E.
OTHER INFORMATION: E.
OTHER INFORMATION: E.
OTHER INFORMATION: E.
OTHER INFORMATION: N.
OTHER INFORMATION: N.
OTHER INFORMATION: N.
OTHER INFORMATION: E.
OTHER INFORMATION: E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GENERAL INFORMATION:
APPLICANT: Penn, Sharron G.
APPLICANT: Rank, David R.
APPLICANT: Hanzel, David R.
APPLICANT: Hanzel, David K.
TITLE OF INVENTION: HUMAN GENOME-DERIVED SINGLE EXO
TITLE OF INVENTION: EXPRESSION ANALYSIS TWO
FILE REFERENCE: AEDMICA-X-2
CURRENT APPLICATION NUMBER: US/10/029,386
CURRENT FILING DATE: 2001-12-20
NUMBER OF SEQ ID NOS: 34288
SOFTWARE: Annomax Sequence Listing Engine vers. 1.1
SEQ ID NO 22784
LENGTH: 1211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity
Matches 1211; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TYPE: DNA
ORGANISM: HOMO:
FEATURE:
OTHER INFORMATIC
                                                                                                                                                                                                                                                                                                                                                 1483
                                                                                                                                                                                                                                                                                                                                                                                                                             1423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1123
                                   1723
                                                                                                                                                                                                                                                                    1543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1243
                                                                          541
                                                                                                               1663
                                                                                                                                                    481
                                                                                                                                                                                          1603
                                                                                                                                                                                                                               421
                                                                                                                                                                                                                                                                                                         361
                                                                                                                                                                                                                                                                                                                                                                                      301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            121
601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ы
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGGATACTGAGGCTGTGTGGCTGCTCCAAGGCTGGCTCTTCCAGCACCAGCCCGCAGTTCT
                                 GGCTGCTGCTCACATCTGCTCCCTTGCCTGGCCACCAGCCCGCCTTCCGCTACGACCTGC
                                                                                                                                                                                                                                                            GECGGTATGGGGTCTCCCACCCGGACGCAGGGGGCAGCGTGGAGGGCTACTGCTCCCGGAGTG
                                                                                                                                                                                                                                                                                                                                TGGGCTGGCGAAAGGACCCAGTGCCAGATTTGGCAGCCTGGGTGACCAGCTTTGCCGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AGGCTGTGAACGGAGGCCCAGAAGCTGCCCGCCTCTTCCCCAACCTCCACCATGGTAGGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCTTCATCTGGTGCATGCTGCACAACTTTGGGGGAAACCATGGTCTTTTTGGAGCCCTAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGGGGCCCGCCCAGATCAGGGCTGTGCCTGGGAGCTGTGCCCCGTGGCCTCCTGGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGGATACTGAGGCTGTGTGCCTCCAAGGCTGGCTCTTCCAGCACCAGCCGCAGTTCT
                                                                                               CGTCCCTACAGATGAATACCAGCATCTGGTACAACCGATCTGATGTTTGTGAGGCCTGGC
                                                                                                                                                                           TGTACAACTGCTCCGGGGAGGCCTGCAGGGGGCCACAATCGTAGCCCGCTGGTCAGGCGGC
                                                                                                                                                                                                                                                                                                                                                                                        CGGGCATGGCCCCGAGGGCATCAGCCAGAACGAAGTGGTCTATTCCCTCATGGCTGAGC
                                                                                                                                                                                                                                                                                                                                                                                                             CGGGCATGGCCCCGAGGGCATCAGCCAGAACGAAGTGGTCTATTCCCTCATGGCTGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCTTCATCTGGTGCATGCTGCACAACTTTGGGGGGAAAACCATGGTCTTTTTGGAGCCCTAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGGACCTGTTTGCTGAGAGCCAGCCTGTGTATACCCGCACTGCCTCCTTCCAGGGCCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ededecececeadareadedecrerecrededadecrerecececerecerecerecredire
                                                                          CGTCCCTACAGATGAATACCAGCATCTGGTACAACCGATCTGATGTG
                                                                                                                                                       reracaacrecreceeeeaeeeccrecaeeeeccacaarceraecceecreercaeeceec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGGCTGTGAACGGAGGCCCAGAAGCTGCCCGCCTCTTCCCCCAACTCCACCATGGTAGGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           47.0%; ilarity 100.0%; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MAP TO U34879.1
EXPRESSED IN HELA, SIGNAL = 0.74
EXPRESSED IN BRAIN, SIGNAL = 0.93
EXPRESSED IN HEART, SIGNAL = 1.9
EXPRESSED IN BONE MARROW, SIGNAL = 1.6
EXPRESSED IN BONE MARROW, SIGNAL = 1.6
NT HIT: 914785987, EVALUE 0.00e+00
SWISSPROT HIT: P54802, EVALUE 0.00e+00
EST_HUMAN HIT: BE410798.1, EVALUE 0.00e+00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ٥.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 1211; DB 13;
Pred. No. 1.5e-299;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EXON NUCLEIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PROBES USEFUL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1362
                                         1782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1422
                                                                                                                                                         540
                                                                                                                                                                                                1662
                                                                                                                                                                                                                                                                          1602
                                                                                                                                                                                                                                                                                                                                                     1542
                                                                                                                                                                                                                                                                                                                                                                                                                                 1482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60
                                                                              600
                                                                                                                                                                                                                                                                                                                420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          120
      660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
```

```
PRIOR APPLICATION NUMBER: US 60/218,006
PRIOR FILING DATE: 2000-07-12
PRIOR PELLING DATE: 2000-04-20
PRIOR FILING DATE: 2000-04-20
PRIOR APPLICATION NUMBER: US 60/198,676
PRIOR APPLICATION NUMBER: US 60/193,483
PRIOR FILING DATE: 2000-03-29
PRIOR PELLING DATE: 2000-02-24
PRIOR PELLING DATE: 2000-02-24
PRIOR FILING DATE: 2000-02-24
PRIOR FILING DATE: 1999-11-23
PRIOR PELICATION NUMBER: US 60/167,363
PRIOR PELICATION NUMBER: US 60/156,358
PRIOR APPLICATION NUMBER: US 60/146,002
PRIOR FILING DATE: 1999-09-28
PRIOR PILING DATE: 1999-09-09
NUMBER OF SEQ ID NOS: 325720
SOFTWARE: PASSESQ for Windows Version 4.0
SEQ ID NO 111560
PRIOR TILING 2796
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 4
US-10-027-632-111960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                           GENERAL INFORMATION:
APPLICANT: Wang, David G.
APPLICANT: Wang, David G.
TITLE OF INVENTION: Identification and Map
TITLE OF INVENTION: Polymorphisms in the
FILE REFERENCE: 108827.129
CURRENT APPLICATION NUMBER: US/10/027,632
CURRENT FILING DATE: 2002-04-30
CURRENT FILING DATE: 2002-04-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 111960, Application US/10027632 Publication No. US20030204075A9
ORGANISM: Human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2083
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2023
                DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1963
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1783
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1903
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCTCTTGGTGA 1211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCTCTTGGTGA 2333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGCTGGTTGACAGTGTGGCCCAGGGCATCCCTTTCCAACAGCACCAGTTTGACAAAAATG 2202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AGCAGCTGGCGGGGTTGGTGGCCAACTACTACACCCCTCGCTGGCGGCTTTTCCTGGAGG 2142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACAGCCGCTACCAGCTGACCTTGTGGGGGCCCAGAAGGCCAACATCCTGGACTATGCCAACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGCTAGAGCAGGCCCGAGCAGCGGCAGTCAGTGAGGCCGAGGCCGATTTCTACGAGCAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCGCCTACCTGAGCAAGGAGCTGGCCTCCCTGTTGAGGGCTGGAGGCGTCCTGGCCTATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCGCCTACCTGAGCAAGGAGCTGGCCTCCCTGTTGAGGGCTGGAGGCGTCCTGGCCTATG 1902
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGGACCTCACTCGGCAGGCAGTGCAGGAGCTGGTCAGCTTGTACTATGAGGAGGCAAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TGGACCTCACTCGGCAGGCAGTGCAGGAGCTGGTCAGCTTGTACTATGAGGAGGCAAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GAGACACTGTGGACCTGGCCAAGAAGATCTTCCTCAAATATTACCCCGGCTGGGTGGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGCTGGTTGACAGTGTGGCCCAGGGCATCCCTTTCCAACAGCACCAGTTTGACAAAAATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACAGCCGCTACCAGCTGACCTTGTGGGGGCCAGAAGGCAACATCCTGGACTATGCCAACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGCTAGAGCAGGCCGAGCAGCAGCAGTCAGTGAGGCCGAGGCCGATTTCTACGAGCAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AGCTGCTGCCGCACTGGACGAGGTGCTGGCTAGTGACAGCCGCTTCTTGCTGGGCAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGCTGCTGCCGGCACTGGACGAGGTGCTGGCTAGTGACAGCCGCTTCTTGCTGGGCAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGCAGCTGGCGGGGTTGGTGGCCAACTACTACACCCCTCGCTGGCGGCTTTTTCCTGGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                         and Mapping o
                                                                                                                                                                                                                                                                                                                                                                                                                                             of Single Nucleotide
n Genome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1962
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2082
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2022
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1842
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   720
```

```
Ś
                                                   밁
                                                                           Ş
                                                                                                        밁
                                                                                                                              Ś
                                                                                                                                                                                      Ş
                                                                                                                                                                                                                   片
                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                       맑
                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       맑
                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                            뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-10-027-632-111960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches 550;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                            1136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1017
1616
                                                    1556
                                                                                                                                                                                                                     1376
                                                                                                                                                                                                                                                                           1316
                                                                                                                                                                                                                                                                                                                                                                                       1196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1076
                                                                                                           1496
                                                                                                                                                                1436
                                                                                                                                                                                                                                                                                                                                1256
                         601
                                                                               541
                                                                                                                                    481
                                                                                                                                                                                         421
                                                                                                                                                                                                                                                 361
                                                                                                                                                                                                                                                                                                    301
                                                                                                                                                                                                                                                                                                                                                           241
                                                                                                                                                                                                                                                                                                                                                                                                                 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 CCCGGGCTTAGCCTTCGGGTCCACGTGGCCGGAGGCCGGCAGCTGATTGGACGCGGGCCG
                                                                                                                                                                                                                                    CGGGGCTGCACCGCTACCTGCGCGACTTCTGTGGCTGCCACGTGGCCTGGTCCGGCTCTC 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCCCACCCCTGGCCGTCGCGGGACCCGCAGGACTGAGACCATGGAGGCGGTGGCGGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCCGGGCTTAGCCTTCGGGTCCACGTGGCCGGA-GCCGGCAGCTGATTGGACGCGGGCCG
                                                                                                                                                                                                                                                                           TGGGCGGCGGCGCGCGCGCGCGCGCGCGCTCCACGGCCTCGACGGCCGCCGCCG 1375
                                                                                                                                                                                                                                                                                                TGGGCGGCGGCGCGCGCGCGCGCGGCGGCGCCCCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                   GGGAGGCGGCGGCGTGCGGGCGCTCGTGGCCCGGCTGCTGGGGCCAGGCCCCGCGGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                             CCCCACCCCTGGCCGTCGCGGGACCCGCAGGACTGAGACCATGGAGGCGGTGGCGGTGG
                          CCTGGAGCGGCCAGGAGGCCATCTGGCAGCGGGTGTACCT
                                                    GCTGCCACCCAAATCGGGAGGCTGAGCGGGGAGCGCTGGCCGGAAGGCCCAGCTGCGCCG
                                                                              ACAGGTACCGCCCGAAGCTTCCCCGCGTCCGCCCGAGGCGCTTACCCCCTCCCGGAGCC
                                                                                                                                    ACAGGTACCGCTATTACCAGAATGTGTGCACGCAAAGCTACTCCTTCGTGTGGGGACT
                                                                                                                                                                AGCTGCGCCTGCCGGGCCACTGCCAGCCGTGCCGGGGGAGCTGACCGAGGCCACGCCCA
                                                                                                                                                                                         AGCTGCGCCTGCCGCCGCCACTGCCAGCCGTGCCGGGGGAGCTGACCGAGGCCACGCCCA 480
                                                                                                                                                                                                                   CGGGGCTGCACCGCTACCTGCGCGACTTCTGTGGCTGCCACGTGGCCTGGTCCGGCTCTC
                                                                                                                                                                                                                                                                                                                                  ACTTCTCCGTGTCGGTGGAGCGCGCTCTGGCTGCCAAGCCGGGCTTGGACACCTACAGCC 1315
                                                                                                                                                                                                                                                                                                                                                         ACTICTCCGTGTCGGTGGAGCGCGCTCTGGCTGCCAAGCCGGGCTTGGACACCTACAGCC
                                                                                                                                                                                                                                                                                                                                                                                        GGGAGGCGGCCGTGCGGGCCTCGTGGCCCGGCTGCTGGGGCCAGGCCCCGCGGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          18.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 485.6; DB 13
Pred. No. 4.8e-114;
0; Mismatches 89;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 13;
                          640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 2796;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            μ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                1495
                                                                                                         1555
                                                    1615
                                                                                                                                    540
                                                                               600
                                                                                                                                                                                                                     1435
                                                                                                                                                                                                                                                                                                                                                                                        1255
                                                                                                                                                                                                                                                                                                                                                                                                                                             1195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1075
                                                                                                                                                                                                                                                                                                      360
                                                                                                                                                                                                                                                                                                                                                            300
                                                                                                                                                                                                                                                                                                                                                                                                                 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   60
```

```
US-10-027-632-111960
US-10-027-632-111960, Application US/10027632

Sequence 111960, Application US/10027632

GENERAL INFORMATION: David G.

TITLE OF INVENTION: Description and Mapping of Single Nucleotide

TITLE OF INVENTION: Polymorphisms in the Human Genome

FILE REFERENCE: 108827.129

CURRENT APPLICATION NUMBER: US/10/027,632

CURRENT FILING DATE: 2000-04-30

FRIOR APPLICATION NUMBER: US 60/218,006

PRIOR FILING DATE: 2000-07-12

PRIOR FILING DATE: 2000-04-20

PRIOR APPLICATION NUMBER: US 60/193,483

PRIOR FILING DATE: 1999-11-23

PRIOR FILING DATE: 1999-11-23
```

```
; TYPE: DNA
; ORGANISM: Human
US-10-027-632-111960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 6
US-10-027-632-141597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR APPLICATION NUMBER: US 60/146,002
PRIOR FILING DATE: 1999-08-09
NUMBER OF SEQ ID NOS: 325720
SOFTWARE: FastSEQ for Windows Version 4.
SEQ ID NO 111560
LENGTH: 2796
                                                                                                                                                                                                                                                                                                                                                            Sequence 141597, Application US/10027632 Publication No. US20030204075A9 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity
                                      APPLICANT: Wang, David G.
TITLE OF INVENTION: Identification and Mapping of Single
TITLE OF INVENTION: Polymorphisms in the Human Genome
FILE REFERENCE: 108827.129
CURRENT APPLICATION NUMBER: US/10/027,632
CURRENT FILING DATE: 2002-04-30
PRIOR APPLICATION NUMBER: US 60/218,006
PRIOR FILING DATE: 2000-07-12
        APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1017
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1076
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4سر
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCCGGGCTTAGCCTTCGGGTCCACGTGGCCGGAGGCCGGCAGCTGATTGGACGCGGGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCCACCCCCTGGCCGTCGCGGGACCCGCAGGACTGAGACCATGGAGGCGGTTGGCGGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ccceeecrraeccrrceeerccacereecceea-ecceecaecreatreeaceceeecce
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACAGGTACCGCCCGAAGCTTCCCCGCGTCCGCCCGAGGCGCTTACCCCCTCCCGGAGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AGCTGCGCCTGCCGGGGCCACTGCCAGCCCGTGCCGGGGGAGCCTGACCGAGGCCAACGCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     cedeecrecaccecraccrececeacrrcrececreccacereeccreercceecrcre
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACTTCTCCGTGTGGAGGGGGCTCTGGGCGAGGCGGGCTTGGACACCTACAGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGGAGGCGGCCGTGCGGGCGCTCGTGGCCCCGGCTGCTGGGGCCCAGGCCCCGCGGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        eggagecegecegreegecerrerrerececegerrerregeceaeccaegeceaecce
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCCCACCCCTGGCCGTCGCGGGACCCGCAGGACTGAGACCATGGAGGCGGTGGCGGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCTCCAGCAGCTGTGTGGCCTTGAGCCAGCCACTCTGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCTGGAGCGGCCAGGAGGCCATCTGGCAGCGGGTGTACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCTGCCACCCAAATCGGGAGGCTGAGCGGGGGAGCGCTGGCCGGAAGGCCCAGCTGCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGGCCCCCTGGGAGCGAGAGATAGACTGGATGGCGCTGAATGGCATCAACCTGGCACTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACAGGTACCGCTATTACCAGAATGTGTGCACGCAAAGCTACTCCTTCGTGTGGGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AGCTGCGCCTGCCGCCGCCACTGCCAGCCGTGCCGGGGGAGCTGACCGAGGCCACGCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 resecrescescecescescesces receives receives receives receives resecresces resecresces resecresces receives recei
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACTTCTCCGTGTCGGAGCGCGCTCTGGCTGCCAAGCCGGGCTTGGACACCTACAGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          18.9%;
        US 60/198,676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 485.6; DB 14;
Pred. No. 4.8e-114;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             refreected consecutations are consecuted to the consecution of the con
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 2796
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    . 1495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1075
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR FILING DATE: 2000-04-20
PRIOR APPLICATION NUMBER: US 60/193,483
PRIOR FILING DATE: 2000-03-29
PRIOR APPLICATION NUMBER: US 60/165,218
PRIOR APPLICATION NUMBER: US 60/167,363
PRIOR APPLICATION NUMBER: US 60/167,363
PRIOR FILING DATE: 1999-11-23
PRIOR APPLICATION NUMBER: US 60/156,358
PRIOR APPLICATION NUMBER: US 60/146,002
PRIOR APPLICATION NUMBER: US 60/146,002
PRIOR APPLICATION NUMBER: US 60/146,002
PRIOR PRILING DATE: 1999-08-09
NUMBER OF SEQ ID NOS: 325720
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 141597
LENGTH: 808
TYPE: DNA
GORGANISM: Human
US-10-027-632-141597
                                                                                                                                                                                                                                                                                                                                                                                              US-10-027-632-141597, Application US/10027632
; Sequence 141597, Application US/10027632
; GENERAL INFORMATION:
; APPLICANT: Wang, David G.
; TITLE OF INVENTION: Identification and Mapping of Single Nucleotide
; TITLE OF INVENTION: Polymorphisms in the Human Genome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
PILE REFERENCE: 108827.129
CURRENT APPLICATION NUMBER: US/10/027,632
CURRENT FILING DATE: 2002-04-30
PRIOR APPLICATION NUMBER: US 60/218,006
PRIOR PILING DATE: 2000-07-12
PRIOR APPLICATION NUMBER: US 60/198,676
PRIOR PILING DATE: 2000-04-20
PRIOR FILING DATE: 2000-04-20
PRIOR APPLICATION NUMBER: US 60/193,483
PRIOR APPLICATION NUMBER: US 60/193,483
PRIOR APPLICATION NUMBER: US 60/185,218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local S
Matches 456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2088 CTGGCGGGTTGGTGGCCAACTACTACACCCCTCGCTGGCGGCTTTTTCCTGGAGGCGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        al Similarity
456; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   \vdash
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTTGACAGTGTGGCCCAGGGCATCCCTTTCCAACAGCACCAGTTTGACAAAAATGTCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTTGACAGTGTGGCCCAGGGCATCCCTTTCCAACAGCACCAGTTTGACAAAAATGTCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTGGCGGGGTTGGTGGCCAACTACTACACCCCTCGCTGGCGGCTTTTTCCTGGAGGCGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGTGTGGGATTAAAGTACTGTTTTCTTTCCACTTAAA 2544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCCCAGAGCTGGACAGACATCACAGGATAACCCCAGGCCTGGGAGGAGGAGGCCCCACGGCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TGGTGATAGATTCGCCACCACTGGGCCTTGTTTTCCGCTAATTCCAGGGCAGATTCCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGGTGATAGATTCGCCACCACTGGGCCTTGTTTTCCGCTAATTCCAGGGCAGATTCCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACTGTGGACCTGGCCAAGAAGATCTTCCTCAAATATTACCCCSGCTGGGTGGCCGGCTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AGTGTGGGATTAAAGTACTGTTTTCTTTTCCACTTAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTGGTGGGGTCTGACCTGGGGGGATTGGAGGGAAATGACCTGCCCTCCACCACCACCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACTGTGGACCTGGCCAAGAAGATCTTCCTCAAATATTACCCCGGCTGGGTGGCCGGCTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  17.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 456.6; DB
Pred. No. 1e-106;
1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length
```

360

Ş 맑 Š

Š 밁 á 밁

S B Ś 밁 Ş 밁 Š 밁 Ś B S

8

밁

0

Gaps

0

2207

60

120

Ş

```
APPLICANT: Hyseq, Inc.

TITLE OF INVENTION: NOVEL NUCLEIC ACID SEQUENCES OBT

TITLE OF INVENTION: FROM VARIOUS CDNA LIBRARIES

FILE REFERENCE: 20411-756

CURRENT APPLICATION NUMBER: US/09/918,995

CURRENT FILING DATE: 2001-07-30

PRIOR APPLICATION NUMBER: US/09/235,076

PRIOR APPLICATION NUMBER: US/09/235,076

PRIOR FILING DATE: 1999-01-20

NUMBER OF SEQ ID NOS: 38054

SOCTWARE: FastSEQ for Windows Version 3.0

SEQ ID NO 30489

LENGTH: 499

LENGTH: 499

LENGTH: 499

LENGTH: 499

LENGTH: 499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR FILING DATE: 2000-02-24

PRIOR APPLICATION NUMBER: US 60/167,363

PRIOR FILING DATE: 1999-11-23

PRIOR APPLICATION NUMBER: US 60/156,358

PRIOR FILING DATE: 1999-09-28

PRIOR PILING DATE: 1999-08-09

PRIOR FILING DATE: 1999-08-09

NUMBER: US 60/146,002

PRIOR FILING DATE: 1999-08-09

NUMBER OF SEQ ID NOS: 325720

SOFTWARE: FASTSEQ for Windows Version 4.0

SEQ ID NO 141597

LENGTH: 808
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                      RESULT 8
US-09-918-995-30489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             멂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ; TYPE: DNA
; ORGANISM: Human
US-10-027-632-141597
                                                                                                                                                                                                                                                                                              Sequence 30489, Application US/09918995
Publication No. US20030073623A1
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                    ORGANISM: Homo sapiens
NAME/KEY: misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2088 CTGGCGGGGTTGGTGGCCAACTACTACACCCCTCGCTGGCGGCTTTTCCTGGAGGCGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 atch 17.7%; cal Similarity 99.8%; 456; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       121
                                                                                                                                                                                                                                                                                                                                                                                                                                       421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ۳,
                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGTGTGGGATTAAAGTACTGTTTTCTTTTCCACTTAAA 2544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTGGTGGGGTCTGACCTGGGGGGATTGGAGGGAAATGACCTGCCCTCCACCACCACCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCCAGAGCTGGACAGACATCACAGGATAACCCCAGGCCTGGGAGGAGGCCCCACGGCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCCCAGAGCTGGACAGACATCACAGGATAACCCAGGCCTGGGAGGAGGAGGCCCCACGGCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTTGACAGTGTGGCCCAGGGCATCCCTTTCCAACAGCACCAGTTTGACAAAAATGTCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTTGACAGTGTGGCCCAGGGCATCCCTTTCCAACAGCACCAGTTTGACAAAAATGTCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACTGTGGACCTGGCCAAGAAGATCTTCCTCAAATATTACCCCGGCTGGGTGGCCGGCTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AGTGTGGGATTAAAGTACTGTTTTCTTTTCCACTTAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTGGTGGGGTCTGACCTGGGGGGATTGGAGGGAAATGACCTGCCCTCCACCACCACCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TGGTGATAGATTCGCCACCACTGGGCCTTGTTTTCCGCTAATTCCAGGGCAGATTCCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TGGTGATAGATTCGCCACCACTGGGCCTTGTTTTCCGCTAATTCCAGGGCAGATTCCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACTGTGGACCTGGCCAAGAAGATCTTCCTCAAATATTACCCCSGCTGGGTGGCCGGCTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 456.6; DB 
Pred. No. le-106;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 14; Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                               OBTAINED
                                                                                                                                                                                                                                                                                                                                                                                                                                       457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         808;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
```

```
; LOCATION: (1)...(499)
; OTHER INFORMATION: n = A,T,C
US-09-918-995-30489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 9
US-10-029-386-9071
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                        US-10-029-386-9071
                                                                                                                                                                                                                                                                                    APPLICANT: Penn, Sharron G.
APPLICANT: Rank, David R.
APPLICANT: Hanzel, David K.
APPLICANT: HANZEL, David K.
TITLE OF INVENTION: HUMAN GENOME-DERIVED SINGLE EXON NUCLEIC ACID PROBES USEFUL TITLE OF INVENTION: EXPRESSION ANALYSIS TWO
FILE REFERENCE: AEOMICA-X-2
CURRENT APPLICATION NUMBER: US/10/029,386
CURRENT FILING DATE: 2001-12-20
NUMBER OF SEQ ID NOS: 34288
SOFTWARE: Annomax Sequence Listing Engine vers. 1.1
SEQ ID NO 9071
LENGTH: 522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 9071, Application US/10029386 Publication No. US20030194704A1 GENERAL INFORMATION:
Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches 446; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity
                                                                  OTHER INFORMATION: MAP TO U34879.1
OTHER INFORMATION: EXPRESSED IN HELA, SIGNAL = 0.74
OTHER INFORMATION: EXPRESSED IN HEART, SIGNAL = 1.9
OTHER INFORMATION: EXPRESSED IN HEART, SIGNAL = 1.9
OTHER INFORMATION: EXPRESSED IN HEART, SIGNAL = 1.6
OTHER INFORMATION: MT HIT: U34879.1, EVALUE 0.00e+00
OTHER INFORMATION: SWISSPROT HIT: P54802, EVALUE 2.00e-36
OTHER INFORMATION: EST_HUMAN HIT: AWZ05518.1, EVALUE 0.00e+00
                                                                                                                                                                                                                               TYPE: DNA
ORGANISM: Homo sapiens
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1169 CCAGCCGCAGTTCTGGGGGCCCCCCCAGATCAGGGCTGTGCTGGGAGCTGTGCCCCCGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CACCATGGTAGGCACGGGCATGGCCCCCGAGGGCATCAGCCAGAACGAAGTGGTCTATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCGCCTCCTGGTTCTGGACCTGTTTGCTGAGAGCCAGCCTGTGTATACCCGGCACTGCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCAGCCGCAGTTCTGGGGGCCCCGCCCAGATCAAGGCTGTGCTGGGAGCTGTGCCCCCGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACTGCTCCGGAGTGTGTACAACTGCTC 1615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CAGCTTTGCCGCCCGGCGGTATGGGGTCTCCCCACCCGGACGCAGGGGCAGCGTGGAGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCTCATGGCTGAGCTGGGCGAAAAGGACCCAGTGCCAGATTTGGCAGCCTGGGTGAC 1528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TTTTGGAGCCCTAGAGGCTGTGAACGGAGGCCCAGAAGCTGCCCGCCTCTTCCCCCAACTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TTTTGGAGCCCTAGAGGCTGTGAACGGAGGCCCAGAAGCTGCCCGCCTCTTCCCCAACTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTTCCAGGCCAGCCCTTCATCTGGTGCATGCTGCACAACTTTGGGGGGAAACCATGGTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTTCCAGGGCCAGCCCTTCATCTGGTGCATGCTGCACAACTTTGGGGGGAAACCATGGTCT 1348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCGCCTCCTGGTTCTGGACCTGTTTGCTGAGAGCCAGCCTGTGTATACCCGCACTGCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACTGCTCCGGAGTGTGTACAACTGCTC 499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CAGCTTTGCCGCCCGGCGGTATGGGGTCTCCCACCCGGACGCAGGGGCAGCGTGGAGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CACCATGGTAGGCACGGGCATGGCCCCCGAGGGCATCAGCCAGAACGAAGTGGTCTATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           17.3%;
99.8%;
16.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 445.4; DB 11
Pred. No. 6.7e-104;
0; Mismatches 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           유
Score 426;
Pred. No.
DB 13;
6.1e-99;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 11;
                Length 522;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           o
..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0,
```

FOR G

```
SEQUENCE 24382, Application US/09918995
PUBLICATION NO. US20030073623A1
GENERAL INFORMATION:
APPLICANT: Hyseq, Inc.
ITTLE OF INVENTION: NOVEL NUCLEIC ACID SEQUE
FILLE REFERENCE: 20411-756
FILLE OF INVENTION NUMBER: US/09/918,995
CURRENT APPLICATION NUMBER: US/09/918,995
CURRENT APPLICATION NUMBER: US/09/235,076
PRIOR APPLICATION NUMBER: US/09/235,076
PRIOR FILING DATE: 1999-01-20
PRIOR FILING DATE: 1999-01-30
PRIOR PRIOR PRIOR PRIOR DATE: 1999-01-30
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ₽,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                            맑
                                                                                 δ
                                                                                                                                В
                                                                                                                                                                      Ş
                                                                                                                                                                                                                     B
                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 10
US-09-918-995-24382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ϋ́
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM: Homo sapiens
-09-918-995-24382
                                                                                                                                                                                                                                                                                                                                                                                                                                          TYPE: DNA
                                                                                                                                                                                                                                                                                                                                Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2239
                                                                                                                                                                             2210
                                                                                                                                                                                                                                                     2150 TGACAGTGTGGCCCAGGGCATCCCTTTCCAACAGCACCAGTTTGACAAAAATGTCTTTCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   426;
                                                                                                                                                                                                                                                                                                         al Similarity
406; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61
                                                                                                                                   92
                                                                                                                                                                                                                       ω
ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AACAGCACCAGTTTGACAAAATGTCTTCCAACTGGAGCAGGCCTTCGTTCTCAGCAAGC 2238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTCGCTGGCGGCTTTTCCTGGAGGCGCTGGTTGACAGTGTGGCCCAGGGCATCCCTTTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      creecreececrimicereeaeececreerreacaerereececaeeecareccriree
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAAATGACCTGCCCTCCACCACCACCCAAAGTGTGGGATTAAAGTACTGTTTTCCTTTCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AGAGGTACCCCAGCCAGCCGCGAGGAGACACTGTGGACCTGGCCAAGAAGATCTTCCTCA
                                                                                                                                   TGACAGTGTGGCCCAGGGCATCCCTTTCC-ACAGCACCAGTTTGACAAAAATGTCTTCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTTAAA 2544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCAGGCCTGGGAGGAGGCCCCACGGCCTGCTGGTGGGGGTCTGACCTGGGGGGATTGGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AATATTACCCCGGCTGGGTGGCCGGCTCTTGGTGATAGATTCGCCACCACTGGGCCTTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AATATTACCCCGGCTGGGTGGCCGGCTCTTGGTGATAGATTCGCCACCACTGGGCCTTGT 2358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AGAGGTACCCCAGCCAGCCGAGGAGACACTGTGGACCTGGCCAAGAAGATCTTCCTCA
  GTGATAGATTCGCCACCACTGGGCCTTGTTTTCCGCTAATTCCAGGGCAGATTCCAGGGC 2389
                                                                                    TGTGGACCTGGCCAAGAAGATCTTCCTCAAATATTACCCCGGCTGGGTGGCCGGCTCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCAGGCCTGGGAGGAGGCCCCACGGCCTGCTGGTGGGGTTCTGACCTGGGGGGATTGGAGG
                                              TGTGGACCTGGCCAAGAAGATCTTCCTCAAATATTACCCCGGCTGGGTGGCCGGCTCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           426
                                                                                                                                                                                                                                                                                                                              15.3%;
99.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                           <u>.</u>
                                                                                                                                                                                                                                                                                                         Score 395; DB 1
Pred. No. 5e-91;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCES
LIBRARIES
                                                                                                                                                                                                                                                                                                                                                   DB 11; Length 449;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OBTAINED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                              1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2178
                                                                                                                                     151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2298
                                                                                                                                                                               2269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 60
                                                 211
                                                                                         2329
                                                                                                                                                                                                                         91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ₽,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                          5
                                                                                                                  片
                                                                                                                                                        S
                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                           뮹
                                                                                                                                                                                                                                                                                                                              5
                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                389
```

```
Sequence 21830, Application US/09918995
Publication No. US20030073623A1
GENERAL INFORMATION:
APPLICANT: Hyeeq, Inc.
ITILE OF INVENTION: NOVEL NUCLEIC ACID SEQUE
TITLE OF INVENTION: FROM VARIOUS CONA LIBRA
FILE REFERENCE: 2041-756
CURRENT APPLICATION NUMBER: US/09/918,995
CURRENT FILING DATE: 2001-07-30
PRIOR APPLICATION NUMBER: US/09/235,076
PRIOR FILING DATE: 1999-01-20
NUMBER OF SEQ ID NOS: 38054
SOFTWARE: FastSEQ for Windows Version 3.0
LENGTH: 468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 11
US-09-918-995-21830
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ; ORGANISM: Homo sapiens
; FEATURE:
; NAME/KEY: misc_feature
; LOCATION: (1) ... (468)
; OTHER INFORMATION: n = A,T,C
US-09-918-995-21830
                                                                                                                                                                                                                                                                                                                                                                                                                         Matches 359;
                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2390
                                                                 2495
                                                                                                                              2435
                                                                                                                                                                                            2375
                                                                                                                                                                                                                                                            2315
 2555
                                                                                                                                                                                                                                                                                                                                                                                         332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                212
                                                                                                                                                                                                                             149
                                329
                                                                                               269
                                                                                                                                                               209
                                                                                                                                                                                                                                                                                             89
                                                                                                                                                                                                                                                                                                                                                           29
                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCAGAGCTGGACAGCATCACAGGATAACCCAGGCCTGGGAGGAGGCCCCACGGCCTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGTGGCCGGCTCTTGGTGATAGATTCGCCACCACTGGGCCTTGTTTTCCGCTAATTCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGTGGGGTCTGACCTGGGGGGATTGGAGGGAAATGACCTGCCCTCCACCACCCAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCAGAGCTGGACAGACATCACAGGATAACCCAGGCCTGGGAGGAGGAGGCCCCACGGCCTGCT
                                                                                                                                                                                                                                                                                             GCCGCGAGGAGACACTGTGGACCTGGCCAAGAAGATCTTCCTCAAATATTACCCCGGCTG
                                                                                                                                                                                                                                                                                                                          GCCGCGAGGAGACACTGTGGACCTGGCCAAGAAGATCTTCCTCAAATATTACCCCGGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GETGGGGTCTGACCTGGGGGATTGGAGGGAAATGACCTGCCCTCCACCACCACCAAAG
AA 2556
                                                       GCCCACGGCCTGCTGGTGGGGTCTGACCTGGCGGGATTGGAGGGAAATGACCTGCCCTC
                                                                                                                                                                                              GGCAGATTCCAGGGCCCAGAGCTGGACAGACATCACAGGATAACCCCAGGCCTGGGAGGAG
                                                                                                                                                                                                                             GGTGGCCGGCTCTTGGTGATAGATTCGCCACCACCACTGGGCCTTGTTTTCCGCTAATTCCAG
                                                                                                                                                                                                                                                                                                                                                           GCCCACGGCCTGCTGGGGGTCTGACCTGGGGGGATTGGAGGGAAATGACCTGCCCTC
                                                                                                                                                               GGCAGATTCCAGGGCCCAGAGCTGGACAGACATCACAGGATAACCCCAGGCCTGGGAGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                         13.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9
                                                                                                                                                                                                                                                                                                                                                                                                                         0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTTCTTTCCACTTAAAAAAAAAAAAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 358.4; DB 1
Pred. No. 1.1e-81;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACID SEQUENCES
CDNA LIBRARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 11; Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      OBTAINED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                468;
                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   271
                                                                                                                                   2494
                                                                                                                                                                                                 2434
                                                                                                                                                                                                                                                                 2374
                                                                                                                                                                                                                                                                                                                              2314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       391
                                      388
                                                                     2554
                                                                                                    328
                                                                                                                                                                    268
                                                                                                                                                                                                                                  208
                                                                                                                                                                                                                                                                                                148
                                                                                                                                                                                                                                                                                                                                                               88
                                                                                                                                                                                                                                                                                                                                                                                                                             0
```

B

```
APPLICANI: INDAYONI
APPLICANT: SAKAKI, YOSHIYUKI
APPLICANT: SAKAKI, YOSHIYUKI
APPLICANT: HATTORI, MASAHIRA
TITLE OF INVENTION: NOVEL POLYNUCLEOTIDES
FILE REFERENCE: 249-262
CURRENT APPLICATION NUMBER: US/10/156,761
CURRENT FILING DATE: 2002-05-29
PRIOR APPLICATION NUMBER: JP 2001-204089
PRIOR FILING DATE: 2001-05-30
PRIOR PILING DATE: 2001-05-30
PRIOR APPLICATION NUMBER: JP 2001-272697
PRIOR APPLICATION NUMBER: JP 2001-272697
PRIOR FILING DATE: 2001-08-02
NUMBER OF SEQ ID NOS: 15109
SEQ ID NO 2002
LENGTH: 2184
TYDE: NNA
                                                                                                                       멂
                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ϋ́
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; FEATURE:
; NAME/KEY: CDS
; LOCATION: (1)..(2184)
US-10-156-761-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-156-761-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 2002, Application US/10156761
Publication No. US20030119018A1
GENERAL INFORMATION:
APPLICANT: OMURA, SATOSHI
APPLICANT: IKEDA, HARUO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Local Similarity 46.9
Matches 961; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TYPE: DNA
ORGANISM: Streptomyces
                                             680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               150
                                                                                                                                                                                                                                                                           450
                                                                                                                                                                                                                                                                                                                                                             560
                                                                                                                                                                                                                                                                                                                                                                                                                                       390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ω
TACTGGTCCTGCCTTCCTGGCCTGGGGGGGGGGGAACGCCTGCAACCCTGGGATGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ecececrorecoreccaaecceecrorecaacaccaccreeceececececececece
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AGCGCCCGCGGCGGCTCGCCGACGGCCGCCCGCCTCCTCCCCCCCGTCACTGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TCTCGCCGCCGGGTCCGCGGGCGCCGCCGTCGCCTGTGACC---CGGCCTCGGCCGACGG
                                                                                                                                                                                                                                                                           GCTCGACGTACTGGCCCTGCACGGCTACAACGAAGTGCTCGTCCAAACGGGCGCGGACGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GAATGTGTGCACGCAAAGCTACTCCTTCGTGTGGTGGGACTGGGCCCGCTGGGAGCGAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACTGCCAGCCGTGCCGGGGAGCTGACCGAGGCCACGCCCAACAGGTACCGCTATTACCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ececeacricia de la consecue de la co
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCTCCACCACCGGGTGTTCCCAGGAGTTCGGGGTACACCGACGAGGAGCTGCGGAAGTGGAT
                                                                                                                                                                                    CATCTGGCAGCGGGTGTACCTGGCCTTGGGCCTGACCCAGGCAGAGATCAATGAGTTCTT
                                                                                                                                                                                                                                                                                                                                                         GATAGACTGGATGGCGCTGAATGGCATCAACCTGGCACTGGCCTGGAGCGGCCAGGAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCGCGTCACCGTCACGGGGCACACCGGCGACCCCAGCTCACGGGGCTGAACTGGTACTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCAGCTGACGTTCCGCACGGCGGGCGGACGCGACACGTTCCAGGTGTCCGGCCGTACGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                   CAACGACACGACGACGGCTACACGGCCCGTACCACGACTGGACGTACTGGGAGCGTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACTGCCGGGCCTCGCCGGCACAGTGACCCGGCGCGCGAACGTCCCGCACCGCTTCGCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 rerecreseceses en respectation de la respectation d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IKEDA, HARUO
ISHIKAWA, JUN
HORIKAWA, HIROSHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            7.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           avermitilis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 183.4; DB 15; Length Pred. No. 8.3e-37; O; Mismatches 996; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               <del>,</del>06
                                                                                                                                                                                                                                                                                                                                                             619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   149
                                                                                                                                                                                                     679
                                                                                                                                                                                                                                                                           508
                                                                                                                                                                                                                                                                                                                                                                                                                                   449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9
                                                                          Ş
                                                                                                                                                            밁
                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        멹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
        1605
                                                                                                                                                                                                                                                                                                                    1485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1068
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1034
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            975
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     921
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             861
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   980
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 630
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             690
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         570
            GAAGGTGCGGCCGGGCTGCGCGCGTCGTCGGCGTACCGCCGACCTGCTCGACGTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GÓCCÓCCTTCGCCTGTTTTCCGAACTCGCCTGGCGCGAGGGGCGACTTG---GACCTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCTGCACGAGGGCGGCAGCCCCGGTGACGTGCC-----CGTCGGCGACGCGGCGAAGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCCCGACTGG-----CTGGACCCGCGCACCGAGCACTTCACACGGGTGGCCGCGGC
                                                                                      CACATCTGCTCCCTCCCTGGCCACCAGCCCCGCCTTCCGCTACGACCTGCTGGACCTCAC
                                                                                                                                                                                                                                                                                                                        GGGCGCGGACGGGCTGTTCGGGGCCCCCCCCCCCCCCCGCGACGAAGGCGGCTTCCCTG
                                                                                                                                                                                                                                                                                                                                                                                              CAATCGTAGCCCGCTGGTCAGGCGGCCGTCCCTACAGATGAATACCA----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGCCTGGGACATCCTGCGCCGGACCGCGTACGGCACCACGCGCGCCGACTCGTGGAGCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGCGTGGAGGCTACTGCTCCGGAGTGTGTACAACTGCTCCGGGGAGGCCTGCAGGGGCCA 1636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGCATGGTTCGCGCGGTGGGCGCGCTCGCGCTACGGGGGACGCGATCCACATGCGGAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AGCCTGGGTGACCAGCTTTGCCGCCCCGGCGTATGGGGTCTCCCACCCGGACGCAGGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AGTGGTCTATTCCCTCATGGCTGAGCTGGGCTGGCGAAAGGACCCAGTGCCAGATTTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CAGGCCGGGCAGCACCCTGCGCGGTGTCGCTCTGCTCCCGGAGGCCGCGGACAACAATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTTCCCCAACTCCACCATGGTAGGCACGGGCATGGCCCCGAGGGCATCAGCCAGAACGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCATACGACCCTGGGCGCGAACACTCCCGACTGGGCTTCGCTGTACGAGCGGTGGCGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAACCATGGTCTTTTTGGAGCCCTAGAGGCTGTGAACGGAGGCCCCAGAAGCTGCCCGCCT 1396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCGCGAGGCGGACTGGCACGCCACCCCGTACGCCTTCGGCTCGATCTGGAACTTCGGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ccecacrecorrecaeeeccaeccorrecarcaecarecaeecaeeeee
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGACAAGGACCGGATGCTCGTCGTGGACCGCCTCTGTGACCGCTTCCCGAAGGTCACCGA 1127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ecccerecceccicine encica e en constante en c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTTCCAGCACCAGCCGCAGTTCTGGGGGCCCGCCCAGATCAGGGCTGTGCTGGGAGCTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTTCAATGAGATGCAGCCACCTTCCTCAGAGCCCTCCTACCTTGCCGCAGCCACCACTGC 1099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCTCTTCCTGCGAGAGCTGATCAAAGAGTTTGGCACAGACCACATCTATGGGGCCGACAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TTCCTACTCCTGCTTCCTGCTCCGGAAGACCCCATATTCCCCATCATCGGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCGCTCCTTCGGCATGACCCCAGTGCTGCCTGCATTCGCGGGGCATGTTCCCGAGGCTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCTGCCCCCCCCCGGCACATCAAGCAGCTTTACCTGCAGCACCGGGTCCTGGACCAGAT
                                                                                                                                                                GTCGCCGAAGCGCCTCCGTTACCGGCCCGAGGAGTTCGAACCGGCGCTTGGCGAGCTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGTCGAGAGGGCGTTGCGGGCCGCGCACCCGGGCGCGTATGGGTGATCCTGGGCTGGC- 1033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTTCTACCGGATCCAGGACGAGATGTTCGGCGGCGCCTCGACCCGCTACAAGATGGACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGCCGACCGCAACGCGGGTGCGCACACCGTCCCGCAGGGCACCTGGATGGGCTTCGCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CACCAGGGTGTTCCCTCAGGTCAATGTCACGAAGATGGGCAGTTGGGGGCCACTTTAACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCGGGAGCTGGGCATGACACCGGTGTTCCCCCGGCTACTTCGGCACGGTTCCGCCGGGCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGTCTCACAACAGCTCCTCGACGCCCGGGCCGCGCTCGGCCGCGCATCGCGAACCGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TCCGGGGCCGGCCCATCAGCCCTGGTGGCTGCCTGCAGAACCTCTCCGGCCTTCCCCGACCC
                                                                                                                                                                                                                                      - ccarcreeracaaccearcrearererreaeeccreeceecrecre
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ----AGCACAACCCGCCCAGGGCGATCGTCGACGCCGT
            1664
                                                                                      1792
                                                                                                                                                                    1604
                                                                                                                                                                                                                                                                                                                        1544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1039
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1067
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         974
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             749
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     689
                                                                                                                                                                                                                                                                                                                                                                                                      1683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   919
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           799
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         629
```

1337 AAACCATGGTCTTTTTGGAGCCCTAGAGGCTGTGAACGGAGGCCCAGAAGCTGCCCGCCT 1396	Db 2453722 AGCGCCCGCGGCGGGCCGCGCGCGCGCCGCCGGCCGGCC
	200 GGCTCGTGGCCGGCTGGTCGGGGCCAGCCCGCGGCCGACTTCTCCGTGTCGGTGGA
3 8	Qy 140 TCTCCTGGCCGGGGGCGGCGGCAGGCGAGGCCGGGAGGCGGCCGTGCG 199
20 6	Query Match 7.1%; Score 183.4; DB 15; Length 9025608; Best Local Similarity 46.9%; Pred. No. 3.8e-36; Matches 961; Conservative 0; Mismatches 996; Indels 90; Gaps 9; Qy
1100 CGTCTATGAGGCCATGACTGCAGTGGATACTGAGGCTGTGTGGGCTGCTCCAAGGCTGGCT	; NAME/KEY: misc feature Qy; LOCATION: (4187715); LOCATION: (4187715) Db OTHER INFORMATION: a, t, c, g, other or unknown US-10-156-761-1
1040 TTTCAATGAGATGCAGCCACCTTCCTCAGAGCCCTCCTACCTTGCCGCAGCCACCACTGC 1099	ZY LENGTH: 9025608 QY TYPE: DNA COMPANY COMPAN
	51
920 TICCTACTCCTCCTTCCTTCTGCTCCGGAAGACCCCATATTCCCCATCATCGGGAG 979	CURRENT APPLICATION NUMBER: US/10/156,761 ; CURRENT FILING DATE: 2002-05-29 ; PRIOR APPLICATION NUMBER: JP 2001-204089 DEFIDE FILING DATE: JP 2001-204089
860 CACCAGGGTGTTCCCTCAGGTCAATGTCACGAAGATGGGCAGTTGGGGCCACTTTAACTG 919	APPLICANT: SAKAKI, YOSHIYUKI APPLICANT: HATTORI, MASAHIRA TITLE OF INVENTION: NOVEL POLYNUCLEOTIDES ETITE DEFERBENCE: 240-262 DD
	IKEDA, ISHIKA HORIKA SHIBA
740 CCTGCCCCCCTCCTGGCACATCAAGCAGCTTTACCTGCAGCACCGGGTCCTGGACCAGAT 799	US-10-10-10-761-1 Sequence 1, Application US/10156761 Publication No. US20030119018A1 GENERAL INFORMATION: ADDITIONER. ORDORY Db
680 TACTGGTCCTGCCTTCCTGGCCTGGGGGCGAATGGCCAACCTGCACACCTGGATGGCCC 739	6
	QY 2141 GGCGTG 2147
	2081 CAAGCAGCTGGCGGGGTTGGTGGCCAACTACTACACCCCTCGCTGGCGGCTTTTCCTGGA 2140
	2033 CCAGCTGACCTTGTG
	1973 GGCCCGAGCAGCAGTCAGTCAGGCCGAGGCCGATTTCTACGAGCAGAAACAGCCGCTA
380 GCGCGACTTCTGTGGCTGCCACGTGGCCTGGTCCGGCTCTCAGCTGCGCCTGCCCGCCC	1913 GGCACTGGACGAGTGCTAGTGACAGCCGCTTCTTGCTGGGCAGCTGGCTAGAGCA
320 GCGCTGCGGGTGCGGGCTCCACGGCGGCGCGCGCGGGGCTGCACCGCTACCT 3/9	Qy 1853 GAGCAAGGACTGGCCTCCCTGTTGAAGGGCTGGAAGGCTTGCCTATGAGCTGCCTATGATGGA 1781 Db 1725 GGCCAAGGACACGCTTCGACCGGTTGACCGGTTGACCGGCTTGATGGA 1781 Db 1725 GGCCAAGGACACGCTTCGACCGGTTGACCGGTTGACCGTGATGGA 1781
60 GCGCGCTCTGGCTGCCAAGCCGGGCTTGGACAACCTACAGCCTGGGCGGCGGCGGCGGCGGCGGCGGCGGCGGCGGCGG	OY 1793 TCGGCAGGCAGTGCAGGAGCTGGTCAGCTTGTACTATGAGGAGGCAAGAAGGCCTACCT 1852

밁

```
US-10-156-761-5965
Sequence 5965, Application US/10156761
Publication No. US20030119018A1
GENERAL INFORMATION:
                                                                                                                                                                       APPLICANT: OMURA, SATOSHI
APPLICANT: IKEDA, HARUO
APPLICANT: ISHIKAWA, JUN
APPLICANT: HORIKAWA, HIROSHI
APPLICANT: SATAKAI, YOSHIYUKI
APPLICANT: SAKAKI, YOSHIYUKI
APPLICANT: HATTORI, MASAHIRA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2454997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2454940
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2455654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2455414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2454820
                                                                                                                         INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCÁTACGACCCTGGGCGCGAACACTCCCGACTGGGCTTCGCTGTACGAGCGGTGGCGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGAGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCTGCTGACCGTGTGGGGCACCCGCGCGCGGGTGCGGACGCCGGGCTGCGCCGACTACGCCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGCGCGGGCGTGGGAGCGCGGGAGCGGGACCGGCTCGCGTACGACGCCCTCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    egcccgagcagcagcagtcagtgaggccgaggccgatttctacgagcagaacagccgcta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCTGCTGGAGGCACTCCTGGCCACCGACTCCCGTCATCTGCTGGGCCGTTGGGTGGCCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       escacresacsassiscrescrassisassasses escacrescrassis escacrescrassas escacrescras escacrescr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGCCAAGGACACCGCCCGCTTCGACCGGCTGACCGGCGTCTGG---CTGGCCCTGATGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                eagcaageagecregecrecrerreagegeregagegererregecrargageregecrece
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCGCCAGGCACTCTCCAACCGCAGCCGGGTACTCCTCCCGCAGATCAGGACGGCGTACGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GAAGGTGCGGCCGGGCTGCGCGCTCGTCGGCGTACCGCCGACCTGCTCGACGTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CACATCTGCTCCCTCGCCACCAGCCCCCCCCTTCCGCTACGACCTGCTGGACCTCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGGCGCGGACGGGCTGTTCGGGGGCGCGCCCCCTCCCTCGCGGCGACGAAGGCGGCTTCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CAATCGTAGCCCGCTGGTCAGGCGGCCGTCCCTACAGATGAATACCA-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGCGTGGAGGCTACTGCTCCGGAGTGTGTACAACTGCTCCGGGGAGGCCTGCAGGGGGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGCATGGTTCGCGCGCGCGCGCGCTCGCGCTACGGGGGACGCGATCCACATGCGGAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A PO CONTRA DE LA CONTRA DE LA CONTRA DE CONTRA DE LA CONTRA DE CO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GÉCCÉCCTTCGCCCTGTTTTCCGAACTCGCCTGGCGCGAGGGCGACTTG---GACCTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AGTGGTCTATTCCCTCATGGCTGAGCTGGGCTGGCGAAAGGACCCAGTGCCAGATTTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CAGGCCGGGCAGCACCCTGCGCGGTGTCGCTCTGCTCCCGGAGGCCGCGGACAACAATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 сттессельстесьстветневсь свесствессе с в поставов с поставо с поставов с поставо с поставов с поставо с п
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCGCGAGTGGGCGGGACTGGTCGGCGGGCTGTACCGGCTGCGTGGTCGACGTACTTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CAAGCAGCTGGCGGGTTGGTGGCCAACTACTACACCCCTCGCTGGCGGCTTTTCCTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TCGGCAGGCAGTGCAGGAGCTGGTCAGCTTGTACTATGAGGAGGCAAGAAGCGCCTACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTCGCCGAAGCGCCTCCGTTACCGGCCCGAGGAGTTCGAACCGGCGCTTGGCGAGCTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2455660
                                                                                                                         NOVEL
                                                                                                                         POLYNUCLEOTIDES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1972
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2455473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2455176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2454939
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2454879
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2455653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2455533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2455413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2455356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2455296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2455236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2455116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2455056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2454996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2455593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FILE REFERENCE: 249-262
CURRENT APPLICATION NUMBER: US/10/156,761
CURRENT FILING DATE: 2002-05-29
PRIOR APPLICATION NUMBER: JP 2001-204089
PRIOR APPLICATION NUMBER: JP 2001-272697
PRIOR FILING DATE: 2001-08-02
PRIOR FILING DATE: 2001-08-02
NUMBER OF SEQ ID NOS: 15109
SEQ ID NO 5965
LENGTH: 3114
TYPE: DNA
CRGANISM: Streptomyces avermitilis
RESULT 15
US-10-156-761-1/c
commence 1, Application US/10156761
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  멅
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ᅜ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-10-156-761-5965
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Best Local Similarity Matches 353; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURE:
NAME/KEY: CDS
LOCATION: (1).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     718
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               178 CCCGGGAGGCGGCGGTGCGGGCGCTCGTGGCCCGGCTGCTGGGGCCCAGGCCCCGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            238 CCGACTTCTCCGTGTCGGTGGAGCGCGCTCTGGCTGCCAAGCCGGGCTTGGACACCTACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              101 CCGGCGAGGGCCCCGCCTTGGATACGGCTCCCGCACGCTCCGCGCTCAATCGGCTGCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      creacerecerececes en a consequence de la consequence del consequence de la consequence del la consequence del consequence de la consequenc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCGGGCATGCCGGACAGTTCCGGCTCAGTCTGGTCGGCCGGACCCGCGGGCGCGACCGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACTGGGCCCGCTGGGAGCGAGAGATAGACTGGATGGCGCTGAATGGCATCAACCTGGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCAACAGGTACCGCTATTACCAGAATGTGTGCACGCAAAGCTACTCCTTCGTGTGGTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TCACCGGGGTCCACTGGTACCTGAAGTACGTGTGCGGGGCGCACCTCGCGTGGAACGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TCCGGGTCACCGGCGCACAGGGCGCATCCAGGTGTCGGGTACGACACCGGCCGTGCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ceeeecarerreceeaeecrere
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCTCTCCGGGTACGGCCGGCCCGCTCTCCCCCGGAACTGATCGCCGAACGCGGCCGGGCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCTGCACACCTGGGATGGCCCCCTGCCCCCCCCCCCCACATCAAGCAGCTTTACCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACACCGAGGCCCGCCTGGCTGCCCGCGCCCTCGCACCAGCCGTGGTGGCTGTTGCAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACTGGTCGTACTGGGAGCACCAGATCGACCTCCTCGCGCTGCACGGCTGCAACGAGGTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCCTGTCCCACCGCTTCGCGCTCAACGACACCAACGACGGCTACACGGCCCCGTACGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACGGGCACGTCCCCAAGGGCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        regreates de la regresa de la 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ..(3114)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             6.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ,
,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 155; DB 15;
Pred. No. 1.6e-29;
0; Mismatches 330;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 3114;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
```

Š 밁 Ş 밁 Ś 밁 Ş 밁 S 밁

Ś 밁 Ś 맑 S 밁 Ş ᅜ

밁

837

777 640

700

760

520 597

580

657

717

400 477

537

460

417

340

357

220 297

280

Ś 밁

0

Gaps

0

160

묽 Ś 밁 8 В Ş

S

hablication No. US20030119018A1

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
Ś
                                                                                  В
                                                                                                                                                           8
                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                               B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ᅜ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         멂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME/KEY: misc_feature; LOCATION: (4187715); OTHER INFORMATION: a, t, c, g, other or unknown US-10-156-761-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: SHIBA, TADAYOSHI
APPLICANT: SAKAKI, YOSHIYUKI
APPLICANT: HATTORI, MASAHIRA
TITLE OF INVENTION: NOVEL POLYNUCLEOTIDES
FILE REFERENCE: 249-262
CURRENT APPLICATION NUMBER: US/10/156,761
CURRENT FILING DATE: 2002-05-29
PRIOR APPLICATION NUMBER: UP 2001-204089
PRIOR APPLICATION NUMBER: UP 2001-272697
PRIOR APPLICATION NUMBER: UP 2001-272697
PRIOR FILING DATE: 2001-08-02
NUMBER: UP 2001-272697
PRIOR FILING DATE: 2001-08-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 6.0%;
Best Local Similarity 51.7%;
Matches 353; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NUMBER OF SEQ ID NOS: 15109
SEQ ID NO 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: IKEDA, HARUO
APPLICANT: ISHIKAWA, JUN
APPLICANT: HORIKAWA, HIROSHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LENGTH: 9025608
TYPE: DNA
ORGANISM: Streptomyces avermitilis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PPLICANT: OMURA, SATOSHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               7216093 TCCGGGTCACCGGCGCACAGGGCGCATCCAGGTGTCGGGTACGACACCGGCCGTGCTGC 7216034
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             7216213 CCGGCGAGGGCCCCGCCTTGGATACGGCTCCCGCACGCTCCGCGCTCAATCGGCTGCTGC 7216154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  7215913 CCCTGTCCCACCGCTTCGCGCTCAACGACACCAACGACGGCTACACGGCCCCGTACGCGG 7215854
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  7216033 TCACCGGGGTCCACTGGTACCTGAAGTACGTGTGCGGGGCGCACCTCGCGTGGAACGGCG 7215974
                                                                                                                                                                                                                                                               7215733
                                                                                                                                                                                                                                                                                                                                                                                                                               7215793
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             7215853
                                                                                           7215673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      298
                                                                                                                                                                                                                                                                                                                                                  658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           238 CCGACTTCTCCGTGTCGGTGGAGCGCGCTCTGGCTGCCAAGCCGGGCTTGGACACCTACA 297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               178 CCCGGGAGGCGGCGCCGTGCGGGCGCCGCTGGCGCCTGGGGGCCAGGCCCGGGG 237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    418 CTCAGCTGCGCCTGCCGCGCCACTGCCAGCCGTGCCGGGGGAGCTGACCGAGGCCACGC 477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCGCGGGGCTGCACCGCTACCTGCGCGACTTCTGTGGCTGCCACGTGGCCTGGTCCGGCT 417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCGGGCATGCCGGACAGTTCCGGCTCAGTCTGGTCGGCCGGACCCGCGGGCGCGACCGTT 7216094
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACTGGTCGTACTGGGAGCACCAGATCGACCTCCTCGCGCTGCACGGCTGCAACGAGGTGA 7215794
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCTCTCCGGGGTACGGCGGCCCCCTCCCCCCGAACTGATCGCCGAACGCCGGGCTGG 7215614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  acTegecccecTegeaAeceAeAeATAGACTEGATEGCECTGAATGGCATCAACCTGGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCAACAGGTACCGCTATTACCAGAATGTGTGCACGCAAAGCTACTCCTTCGTGTGGTGGG
                                                                                                                                                                                                                                                           ACACCGAGGCCCGCGCCTGGCTGCCCGCGCCCCTCGCACCAGCCGTGGTGGCTGTTGCAGA 7215674
                                                                                                                                                                                                                                                                                                                                                                                                                                    reergarceceeecaceeacecercraceaceeercreaaeeacrreeecracreee
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  rescenseases es conservados es estas estas
                                                                                                                                                                         ACCTGCACACCTGGGATGGCCCCCTGCCCCCCCTGGCACATCAAGCAGCTTTACCTGC
                                                                                                                                                                                                                                                                                                                                         Score 155; DB 15; Length 9025608; 
Pred. No. 7e-29; 
0; Mismatches 330; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0; Gaps
                                                                                                                                                                                                                                                                                                                                                      717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         537
                                                                                                                                                                                                                                                                                                                                                                                                                                    7215734
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
```

- Db 7215613 GCCGCCGCATCTGCGACCGCGTCGCGCGCGCTCCTGCCCCGGCTACT 7215554

 Qy 838 CGGGGCATGTTCCCGAGGCTGTC 860

Search completed: February 13, 2004, 16:14:47
Job time : 922 secs

```
Title:
Perfect score:
Sequence:
Resul
No
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Post-processing:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Scoring table:
                                                                                                                                                                                                     Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                   A_Geneseq_19Jun03:*

1: /SIDS1/gcgdata/geneseq/geneseqp-emb1/AA1980.DAT:*
2: /SIDS1/gcgdata/geneseq/geneseqp-emb1/AA1981.DAT:*
3: /SIDS1/gcgdata/geneseq/geneseqp-emb1/AA1982.DAT:*
4: /SIDS1/gcgdata/geneseq/geneseqp-emb1/AA1983.DAT:*
5: /SIDS1/gcgdata/geneseq/geneseqp-emb1/AA1983.DAT:*
6: /SIDS1/gcgdata/geneseq/geneseqp-emb1/AA1986.DAT:*
7: /SIDS1/gcgdata/geneseq/geneseqp-emb1/AA1986.DAT:*
9: /SIDS1/gcgdata/geneseq/geneseqp-emb1/AA1986.DAT:*
9: /SIDS1/gcgdata/geneseq/geneseqp-emb1/AA1989.DAT:*
9: /SIDS1/gcgdata/geneseq/geneseqp-emb1/AA1989.DAT:*
10: /SIDS1/gcgdata/geneseq/geneseqp-emb1/AA1989.DAT:*
11: /SIDS1/gcgdata/geneseq/geneseqp-emb1/AA1989.DAT:*
12: /SIDS1/gcgdata/geneseq/geneseqp-emb1/AA1991.DAT:*
13: /SIDS1/gcgdata/geneseq/geneseqp-emb1/AA1993.DAT:*
14: /SIDS1/gcgdata/geneseq/geneseqp-emb1/AA1993.DAT:*
15: /SIDS1/gcgdata/geneseq/geneseqp-emb1/AA1995.DAT:*
16: /SIDS1/gcgdata/geneseq/geneseqp-emb1/AA1995.DAT:*
17: /SIDS1/gcgdata/geneseq/geneseqp-emb1/AA1999.DAT:*
18: /SIDS1/gcgdata/geneseq/geneseqp-emb1/AA1999.DAT:*
19: /SIDS1/gcgdata/geneseq/geneseqp-emb1/AA1999.DAT:*
20: /SIDS1/gcgdata/geneseq/geneseqp-emb1/AA1990.DAT:*
21: /SIDS1/gcgdata/geneseq/geneseqp-emb1/AA1990.DAT:*
22: /SIDS1/gcgdata/geneseq/geneseqp-emb1/AA1990.DAT:*
23: /SIDS1/gcgdata/geneseq/geneseqp-emb1/AA2000.DAT:*
24: /SIDS1/gcgdata/geneseq/geneseqp-emb1/AA2000.DAT:*
24: /SIDS1/gcgdata/geneseq/geneseqp-emb1/AA2000.DAT:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               February 13, 2004, 13:32:04; Search time 54 Seconds (without alignments) 2183.960 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-09-836-613-2
3939
1 MEAVAVAAAVGVLI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1107863 seqs, 158726573 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEAVAVAAAVGVLLLAGAGG......VDLAKKIFLKYYPGWVAGSW 743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GenCore version 5.1.6
Copyright (c) 1993 - 2004 Compugen Ltd.
                                                                                                                                        SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1107863
```

0.11	Score	Query Match	Query Match Length DB	BIG	ID	Description
μ	3939	100.0	743	18	18 AAW18017	Human alpha-N-acet
N	1407	35.7	690	22	ABB68119	Drosophila melanog
w	147.5	3.7	101	23	ABP32743	Human ORF1716 prot
4	125.5	3.2	497	22	AAE05171	Human drug metabol
u	121	3.1	4342	22	AAU33611	Pseudomonas aerugi
σ	121	3.1	4472	18	AAW22601	Tylactone synthase
7	120	3.0	3729	18	AAW22603	Tylactone synthase
œ	118.5	3.0	871	22	AAB30570	A splice variant o
φ	118.5	3.0	871	23	AAE16274	Human kinase PKIN-

4 4 U	44	43	42	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	ı
104	104	104	104	104	104.5	105	105	106	106		107.5	109.5	109.5	111.5	111.5	111.5	111.5	111.5	113	117.5		7	.7	٠		٠	7.	œ.	8	8		φ.	118.5	8	œ	•
	2.6	•		٠				٠	٠		•			•	•		•					•			•								3.0	•		
654	588	588	581	581	62	15	1203	00	310	308	1621	7	7	ø	ω	9	497	œ	7257	9	9	497	9	9	497	9	9	96	53	59	99	99	1618	61	35	,
22	23	21	22	21	19	21	20	22	23	22	19	22	N N	17	17	16	16	21	21	24	23	19	17	17	17	16	16	24	24	22	23	23	22	22	22	,
AAU29036	AAU11406	AAY58161	AAB65701	AAY84322	AAW60163	AAY92707	AAW81572	ABG11447	AAM51006	AAG92974	AAW60162	AAG98997	AAU34791	AAR93185	AAR93182	AAR72378	AAR72375	AAG45186	AAY58576	AA026405	ABB09563	AAW44869	AAR81462	AAR93184	AAR93183	AAR72377	AAR72376	ABG76187	618	056	537	AAE24151	AAB85504	056	056	
Human PRO polypept	Adeno-associated v	Adeno associated v	Novel protein kina	O	Arabidopsis thalia	S. antibioticus 8,	Mus dunni endogeno	Ωı	bacter	C glutamicum prote	Arabidopsis thalia	E. coli growth and	coli	Human cytochrome P	Human cytochrome P	Human auxillary cy	Human auxillary cy	Arabidopsis thalia	Sorangium cellulos	Human drug-metabol	Human CYP2D6 prote	P4	Human derived cyto		Human cytochrome P	auxillary		Human serine/threo	Human serine/threo	μ.	Human myosin light		Human protein kina		acid sec	

ALIGNMENTS

RESULT 1 AAW18017

AAW18017 standard; Protein; 743 AA. AAW18017; 20-AUG-1997 (first entry) Human alpha-N-acetylglucosaminidase. Alpha-N-acetylglucosaminidase, mucopolysaccharidosis type IIIB; gene therapy; enzyme replacement therapy; diagnosis. Homo sapiens. Key Peptide 1.23

```
Query Match
Best Local Similarity
Matches 743; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Human alpha-N-acetylglucosaminidase (AAM18017) can hydrolyse the terminal alpha-N-acetylglucosamine residues at the non-reducing terminus of fragments of heparan sulphate and heparin. Its amino acid sequence was deduced from a human peripheral blood leukocyte cDNA clone (AAT67163) and the combinant enzyme can be expressed in host (pref. CHO) cells and may be expressed as a fusion to e.g. an enzyme, reporter molecule, purification tag and/or signal sequence. It can be used to treat alpha-N-acetylglucosaminidase deficiency, for example in patients suffering from mucopolysaccharidosis type IIIB. Administration is by oral, i.v., i.p., enzyme replacement therapy, gene therapy or other routes.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Nucleic acid encoding mammalian alpha-N-acetylglucosaminidase - used for the diagnosis and treatment of mucopolysaccharidosis type IIIB, also used in gene therapy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WPI; 1997-298114/27.
N-PSDB; AAT67163, AAT67164.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Claim 11; Page 46-50; 79pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Anson DS,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              23-NOV-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          22-NOV-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         29-MAY-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WO9719177-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Modified-site
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (WOME-) WOMEN'S & CHILDREN'S HOSPITAL.
                                                                                                                                                                                                                                                                                                                     241
421
                                          421
                                                                                         361
                                                                                                                                     361
                                                                                                                                                                                  301
                                                                                                                                                                                                                              301
                                                                                                                                                                                                                                                                           241
                                                                                                                                                                                                                                                                                                                                                                    181
                                                                                                                                                                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                                                                                                                                                                               121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ნ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -ب
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ۳
                                                                                                                                                                                                                                                                                                           MEAVAVAAAVGVLLLAGAGGAAGDEAREAAAVRALVARLLGPGPAADFSVSVERALAAKP
                           EAVNGGPEAARLFPNSTMVGTGMAPEGISQNEVVYSLMAELGWRKDPVPDLAAWVTSFAA 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LTEATPURYRYYQUVCTQSYSFVWWDWARWEREIDWMALNGINLALAWSGQEAIWQRVYL 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GLDTYSLGGGGAARVRVRGSTGVAAAAGLHRYLRDFCGCHVAWSGSQLRLPRPLPAVPGE
EAVNGGPEAARLFPNSTMVGTGMAPEGISQNEVVYSLMAELGWRKDPVPDLAAWVTSFAA
                                                                                                                                   WGPAQIRAVLGAVPRGRLLVLDLFABSQPVYTRTASFQGQPFIWCMLHNFGGNHGLFGAL
                                                                                                                                                                                                                         KERGTDHIYGADTFNEMOPPSSEPSYLAAATTAVYEAMTAVDTEAVWLLQGWLFQHQPQF
                                                                                                                                                                                                                                                                                                                                                                                                              ALGLTQAEINEFFTGPAFLAWGRMGNLHTWDGPLPPSWHIKQLYLQHRVLDQMRSFGMTP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LTEATPNRYRYYQNVCTQSYSFVWWDWARWEREIDWMALNGINLALAWSGQEAIWQRVYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GLDTYSLGGGGAARVRVRGSTGVAAAAGLHRYLRDFCGCHVAWSGSQLRLPRPLPAVPGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEAVAVAAAVGVLLLAGAGGAAGDEAREAAAVRALVARLLGPGPAADFSVSVERALAAKP
                                                                                         WGPAQIRAVLGAVPRGRLLVLDLFAESQPVYTRTASFQGQPFIWCMLHNFGGNHGLFGAL
                                                                                                                                                                                    KEFGTDHIYGADTFNEMQPPSSEPSYLAAATTAVYEAMTAVDTEAVWLLQGWLFQHQPQF
                                                                                                                                                                                                                                                                             VLPAFAGHVPEAVTRVFPQVNVTKMGSWGHFNCSYSCSFLLAPEDPIFPIIGSLFLRELI
                                                                                                                                                                                                                                                                                                                                                                    ALGLTQAEINEFFTGPAFLAWGRMGNLHTWDGPLPPSWHIKQLYLQHRVLDQMRSFGMTP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Blanch L,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             743 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               100.0%; Score 3939; ilarity 100.0%; Pred. No. 0; Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              95AU-0006748.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          96WO~AU00747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note= "potential N-glycosylation site"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Hopwood JJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Scott H,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Weber B;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 743;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                 360
                                                                                                                                                                                                                                                                                                                          300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          120
                                                                                                                                                                                    360
                                                                                                                                                                                                                                                                                                                                                                         240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             120
                                                                                                                                     420
                                                                                                                                                                                                                                                                             300
                                                                                                                                                                                                                                                                                                                                                                                                                     240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     60
                                                                                           420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
```

Š

밁

8 밁 δ 밁 Ş 밁 δ 뮍 δ 뭉 δ 밁 8

밁

#88888888888 # #	Y S X P P P X X R	X P X X X X X X X X X X X X X X X X X X	WX SOX X SOX SOX SOX SOX SOX SOX SOX SOX	XX AX ID BR D	8 8 8 8	2
The invention relates to an isolated nucleic acid detection reagent capable of detecting 1000 or more genes from Drosophila. The invention is useful in developmental biology and in elucidating cell signalling and cell-cell interactions in higher eukaryotes for the development of insecticides, therapeutics and pharmaceutical drugs. The invention discloses genomic DNA sequences (ABL016176-ABL30511), expressed DNA sequences (ABL01840-ABL16175) and the encoded proteins (ABB5737-ABB72072). The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO at ftp.wipo.int/pub/published_pot_sequences. Sequence 690 AA;	WPI; 2001-656860/75. N-PSDB; ABL12222. New isolated nucleic acid genes from Drosophila and interactions - Disclosure; SEQ ID NO 311	23-MAR-2001; 2001WO-US09231. 23-MAR-2000; 2000US-191637P. 11-JUL-2000; 2000US-0614150. (PEKE) PE CORP NY. Venter JC, Adams M, Li PWD, Myers EW;	Drosophila melanogaster polypeptide SEQ ID NO 31149. Drosophila; developmental biology; cell signalling; insecticide; pharmaceutical. Drosophila melanogaster. WO200171042-A2. 27-SEP-2001.	721 GD 721 GD 721 GB 721 GB 72	661 KQLAGLVANYYTERWRLFLEALVDSVAQGIPFQQHQFDKNVFQLEQAFVLSKQRYPSQPR 720	481 RRYGVSHPDAGAAWRLILIRSVYNCSGEACRGHNRSPLVBRPSLQMNTSIWYNRSDVFEAW 540 481 RRYGVSHPDAGAAWRLILLRSVYNCSGEACRGHNRSPLVBRPSLQMNTSIWYNRSDVFEAW 540 541 RLLLTSAPSLATSPAFRYDLLDLTRQAVQELVSLYYEEARSAYLSKELASLLRAGGVLAY 600 [

Similarity

35.7%; 43.3%;

Length

690;

```
δ
                                                                                                                                                                                                                                                                                                                                                                                                                                              片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local S
Matches 290
Human; ORF; open reading frame; ORFX; drug screening; diagnosis; disease monitoring; cytokine; cell proliferation; cell differentiation; immune modulation; haematopoiesis regulation; tissue growth; angiogenesis; activin; inhibin; chemotactic; chemokinetic; haemostatic; thrombollytic; tumour inhibition; bodily characteristic; fertility; behaviour; cancer; proliferative disorder; neurological disorder; cardiovascular disease; immune system disorder; organ transplantation; tissue growth disorder; tissue regeneration disorder; diabetes mellitus; hypothyroidism; cholesterol ester storage disease; infection; vulnerary; vasotropic; antipsoriatic; antidiabetic; cytosfarion.
                                                                                                                                                                                                                           08-JUL-2002
                                                                                                                                                                                                                                                                                              ABP32743 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            312
                                                                                                                                                                                                                                                                                                                                                                                                                723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   290;
                                                                                                                                                                                      ORF1716 protein,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RVRVRGSTGVAAAAGLHRYLRDFCGCHVAWSGSQLRLPR--PLPAVPGELTEATPNRYRY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HLAGPAFQAWQRMGNIRGWAGPLTPAWRRYQLLLQQEIITAQRNLGMSVALPAFAGHVPR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HONVCTWSYSFAWWGIEQWRRHLDWMALMGISLTIA-PVQEAIWVKVYTDMGLRMEEIDE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAWRLLLRSVYNCSG-EACRGHNRSPLVRRPSLQMNTSIWYNRSDVFEAWRLLLTSAPSL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RLPNSSLVGTGITPEGIGQNYVMYSFTLERGWSNTSL-DLDSWFTNPSHSRYGVKDERLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AVPRGRILVLDLFAESQPVYTRTASFQGQPFIWCMLHNFGGNHGLFGALEAVNGGPEAAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DPFNELEPPVAKPEYMRSTAAAIYESMRGIDPQAIWLLQGWMFVXNP-FWTTDMAEAFLT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    YQNVCTQSYSFVWWDWARWEREIDWMALNGINLALAWSGQEAIWQRVYLALGLTQAEINE
                                                                                                                                                                                                                                                                                                                                                                                TWLISQDIF
                                                                                                                                                                                                                                                                                                                                                                                                                TVDLAKKIF
                                                                                                                                                                                                                                                                                                                                                                                                                                                  SGLVSDYYRPRWRLFLEDVTVALHAGRPFNGTAFKLKVSHEIELPFSNKDDVYPVTPVGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AGLVANYYTERWRLFLEALVDSVAQGIFFQQHQFDKNV-FQLEQAFVLSKQRYFSQFRGD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DDMELILASSRNÍLLGNWLQÓAKQÁAPNTGQQRNFÉFNARNQITAWGPDGQILDYACKQW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DE---VLASDSRFLLGSWLEQARAAAVSEAEADFYEQNSRYQLTLWGPEGNILDYANKQL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PLEDNRYEIYEHDLVDITROFLQISADQLYINLRSAYRKRQVSRF----EFLSVKLLKLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATS----PAFRYDLIDLTROAVOELVSLYYEEARSAYLSKELASLLRAGGVLAYELLPAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     QAWLLLKNSVYSFRGLQKMRG--QYVVTRRPSFNQEPFTWYNASAVLDAWHLLLTFRAII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LFPNSTMVGTGMAPEGISONEVVYSLMAELGWRKDPVPDLAAWVTSFAARRYGVSHPDAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAPRGRILVLDLQSEQFPQYELTRSYFGQPFIWCMLHNFGGTLGMFGSAKLINSGIEEAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DTFNEMOPPSSEPSYLAAATTAVYEAMTAVDTEAVWLLQGWLFQHQPQFWGPAQTRAVLG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ALKRLNPESTFMEVQRWNQFPDRYCCGLFVEPTENLFKEIASRFLHNIITKYGSNHIFFC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AVTRVFPQVNVTKMGSWGHFNCSYSCSFLLAPEDPIFPIIGSLFLRELIKEFGTDHIYGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FFTGPAFLAWGRMGNLHTWDGPLPPSWHIKQLYLQHRVLDQMRSFGMTPVLPAFAGHVPE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RILLMGWDGVSVCKALHHYLKYVLNKDVDWFKMRIELPTNLQLPNVTIESKSASP--IIY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                          (first
                                                                                                                                                                                                                                                                                              Protein;
                                                                                                                                                                                                                        entry
                                                                                                                                                                                         SEQ ID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               %; Score 1407; DB 22;
%; Pred. No. 1.9e-118;
102; Mismatches 255;
                                                                                                                                                                                                                                                                                              101
                                                                                                                                                                                         NO:3432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  131
                                                                                                                                                                                                                                                                                                                                                                                                                                                  65,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                63
```

neuroprotective; antiatherosclerotic; anticoagulant; thrombolytic; cardiant; hypotensive; antithyroid; antiinflammatorr; immunomodulator; dermatological; analgesic; virucide; antibacterial; fungicide. dermatological; analgesic;

sapiens.

WO200190366-A2

24-MAY-2001; 2001WO-US17076

24-MAY-2000; 2000US-206690P

(CURA-) CURAGEN CORP

Leach MD,

Shimkets

Novel human polypeptides and polynucleotides useful for diagnosing, preventing and treating cardiovascular disease, neurodegenerative, hyperproliferative disorders and disorders related to organ transplantation

Claim 10; Page 1118; 2508pp; English

Sequences ABP31028-ABP35561 represent 4534 novel human proteins clearing and open reading frame) 1-4534, and sequences ABN75054-CC ABN79587 represent cDNAs encoding them. The invention also encompasses complypeptides at least 80% identical to the ORF1-ORF4534 (collectively creferred to as ORFX) proteins, polymucleotides at least 85% identical to the ORF1-ORF4534 (collectively creferred to as ORFX) proteins, polymucleotides and least 85% identical to the ORFX proteins antibodies specific for ORFX proteins, methods of detecting ORFX proteins, antibodies of polymucleotides, antibodies of polymucleotides, antibodies of polymucleotides and creditively, and methods of screening for modulators of ORFX expression or a cativity, and methods of screening individuals for a predisposition to an ORFX expression or a comparation, antibodies of the invention have a wide crange of biological activities, such as cytokine, cell proliferation, timmune modulation, haematopolesis regulation, cell differentiation, immune modulation, haematopolesis regulation, cell differentiation, antiinflammatory activity, thrombolytic activity, chemotactic/ creceptor/ligand, antiinflammatory activity, thrombolytic activity, chemotactic creceptor/ligand, antiinflammatory activity, thrombolytic activity, comparation, and behaviour of bodily characteristics, fertility and behaviour. ORFX proteins, complete acids and antibodies may be used in the treatment of cancers, complete acids and antibodies may be used in the treatment of cancers, complete acids and antibodies may be used in the treatment of cancers extra cativity and behaviour. ORFX proteins, and comparation, disorders such as postiasis and benign tumours, comparation, disorders such as postiasis and benign tumours, comparation, disorders such as postiasis and benign tumours, comparation, disorders such as postiasis, disorders related to creative disorders with the detection of ORFX genomic sequences or transcripts, in the identification and cloning of homologous sequences and may additionally

Sequence 101 Ã,

Query Match Best Local S Matches 31 Similarity 3.78; 18; Score 147.5; DB Pred. No. 2.7e-058; Mismatches 3: 23; Length 101; <u>ა</u> Gaps

片 5 GPWLESAKSLAITEKEROOYEWNARTOVTMWYDNTETEOSKLHDYANKFWSGLLKSYYLP GSWLEQARAAAVSEAEADFYEQNSRYQLTLW-----GPEGNILDYANKQLAGLVANYYTP 673 60

S

674

RWRLFLEALVDSVAQGIPFQQHQFDKN

700

```
밁
                 The present sequence is human drug metabolising enzyme (DME-2) protein. Human DME and its nucleic acid molecule are useful for the diagnosis, treatment and prevention of disorders associated with increased or decreased expression of DME. Examples of such disorders include, autoimmune/inflammatory disorder such as acquired immune deficiency syndrome (AIDS), rheumatoid arthritis, osteoporosis; cell proliferative disorder such as actinic keratosis, atherosclerosis; developmental disorder such as epilepsy, anaemia; endocrine disorder such as acromegaly, cretinism, thyrotoxicosis; pancreatic disorder such as diabetes mellitus, eye disorder such as conjunctivitis, glaucoma, iritis metabolic disorder such as Addison's disease, obesity; gastrointestinal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Human; drug metabolising enzyme; DME-2; immunosuppressive; gene therapy; cytostatic; autoimmune disorder; inflammatory disorder; atherosclerosis; cytosteporosis; eye disorder; hepatic tumour; Addisor's disease; cretinism; rheumatoid arthritis; acquired immune deficiency syndrome; AIDS; anaemia; rheumatoid arthritis; acquired immune deficiency syndrome; AIDS; anaemia; developmental disorder; endocrine disorder; iritis; acromegaly; epilepsy; thyrotoxicosis; pancreastic disorder; diabetes mellitus; obesity; adenoma; gastryintestinal disorder; nodular hyperplasia; conjunctivitis; glaucoma;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAE05171;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAE05171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Yang
Ring
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    12-SEP-2001
                                                                                                                                                                                                                                                                                                                                                                                                                            Drug metabolizing enzymes and encoding podiagnosing, treating and/or preventing and proliferative, developmental, endocrine, descriptions and processing and processing and province and pr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 14-JAN-2000; 2000US-0176139
21-JAN-2000; 2000US-0177443
28-JAN-2000; 2000US-0178574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    19-JUL-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Key
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HOMO
                                                                                                                                                                                                                                                                                                                                                      Claim 1; Page 136-137; 133pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                          gastrointestinal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             12-JAN-2001; 2001WO-US01174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WO200151638-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     actinic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ק ט,
ק אZ,
ח חים DB,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2001-425874/45.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             INCYTE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  keratosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAD09937.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Baughn MR, E
Hillman JL,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RASKYFAYLTRSLQENRSFQLEEWRKD 87
  such
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             metabolising
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GENOMICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /label=
26.497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                disorders
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 note= "Mature drug metabolising enzyme"
  anorexia,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     metabolic disorder; dysphagia; anorexia; carcinoma;
disorder.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Burford N, Au-Young J, I
,, Yue H, Azimzai Y, Yao
Lal P, Bandman O;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Transmembrane_domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Signal_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             enzyme
dysphagia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (DME-2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
  and
                                                                                                                                                                                                                                                                                                                                                                                                                                     polynucleotides, useful for autoimmune, inflammatory, cee, eye, metabolic, and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             protein
  hepatic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                o MG'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DAM, Reddy R;
3, Gandhi AR;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (DME-2) protein"
                                                          iritis;
```

```
RESULT 5
AAU33611
ID AAU
XX AAU
XX AAU
DT 14-1
XX AAL
XX A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 នន្តន្តន្តន្ត្
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
21-MAR-2000;
23-MAY-2000;
26-MAY-2000;
23-OCT-2000;
27-NOV-2000;
22-DEC-2000;
16-FEB-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         nodular hyperplasia, adenomas and carcinomas. DME DNA is useful for creating 'knockin' humanised animals (pigs) or transgenic animals or rate; to model human disease. DME DNA is also in useful is gene therapy. DME and its immunogenic fragments are useful for screening libraries of compounds in several drug screening assays.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                                                                                                     antibiotic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             14-FEB-2002
                                                                                                                                                                                                    21-MAR-2001;
                                                                                                                                                                                                                                                                                                                                                   Pseudomonas aeruginosa
                                                                                                                                                                                                                                                                                                                                                                                                                             Antisense;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pseudomonas aeruginosa cellular
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAU33611
                                                                                                                                                                                                                                                                                                      WO200170955-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ហ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               93; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      QRYP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AIFLLLVDLMHRRQRWAARYPP---GPLPLPGL-----GNLLHVD------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               standard; Protein; 4342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AHMP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FLTQLDELLTEHRMTWDPAQPPRDLTEAFLAK-KEKAKGSPESSFNDENLRIVV-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LLPALDEVL-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTGMAPEGI ----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AVWLL------QGWLFQHQPQFWGPAQIRAVLGAVPRGRLLVLDLFAESQPVYTRTAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GNLF----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GNILDYANKQLAGIVANYYTPRWRIFLEAIVDSVAQGIPFQQHQFDKNVFQLEQAFVISK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LTCGRRFEYDDPRFLRLLDLAQEGLKEESGFLREVLNAVPVLPHIPAL -- AGKVLRFQKA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LATSPAFRYD-----LLDLTRQAVQELVSLYYEEARSAYLSKELASLLRAGGVLAYE--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AGAAWRLLLRSVYNCSGEACRGHNRSPLVRRPSLQMNTSIWYNRSDVFEAWRLLLTSAPS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GFGPRSQGVFLARYGPAWREQRRFSVSTLRNLGLGK---KSLEQWVTEEAA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FQNTPYCFDQLRRRFGDVFSLQLAWTPVVVLNGLAAVREALVTHGEDTADRPPVPITQIL
                                                                                                                                                                                                                                                                                                                                                                                                                        prokaryotic cellular
  2000US-206848P.

2000US-207727P.

2000US-242578P.

2000US-253625P.

2000US-257931P.

2001US-269308P.
                                                                                                                                                                                                                                                                                                                                                                                                     antibacterial;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                      2001WO-US09180
                                                                                                                                                 2000US-191078P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LAGMVTTSTTLAWALLLMILHPDVQCRV---QQEIDEVIGQVRHPEMADQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             entry.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CLCAAFANHSGRPF -- RPNGLLDKAV -- -- SNVI --
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ----SQNEVVYSLMAELGWRKDPVPDLAAWVTSFAARRYGVSHPD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  53;
                                                                                                                                                                                                                                                                                                                                                                                                   drug
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ASDSRFLLGSWLEQARAAAVSEAEADFYEQNSRYQLTLWGPE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 125.5; I
Pred. No. 0.03:
53; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                   proliferation design.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          proliferation protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .033;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  143;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               22;
                                                                                                                                                                                                                                                                                                                                                                                                                             protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  135;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    497;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         screening
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 --AS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (mice
```

350

246 652 299 712 489

158

601

549 188 439

396

```
S
                                   밁
                                                              S
                                                                                                                               δ
                                                                                                                                                                        밁
                                                                                                                                                                                                Š
                                                                                                                                                                                                                                          ద
                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       The invention relates to antisense inhibitors of genes essential to prokaryotic cellular proliferation, their use in identifying the genes, their use in the discovery of novel antibiotics, the essential genes themselves and the encoded proteins. The prokaryotes used are Escherichia coli, Staphylococcus arecus, Salmonella typhi, Klabsiella pneumoniae, Pseudomonas aeruginosa and Enterococcus faecalis. The invention is also useful for the identification of potential new targets for antibiotic development. The antisense nucleic acids can also be used to obtain antibodies capable of binding to the expressed proteins, and to obtain antibodies capable of binding to the expressed proteins. The proteins can be used to screen compounds in rational drug discovery
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          New polynucleotides for the identification and development antibiotics, comprise sequences of antisense nucleic acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Haselbeck R,
Yamamoto RT,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    programmes. The antisense nucleic acid sequence is also useful to scree for homologous nucleic acids which are required for cell proliferation a wide variety of organisms. The present sequence represents an essential prokaryotic cellular proliferation protein.

Note: The sequence data for this patent did not form part
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     of the printed specification, but was obtained in format directly from WIPO at
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ftp.wipo.int/pub/published_pct_sequences.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (ELIT-) ELITRA PHARM
                                                                                                       1474
                                                                                                                                                                                                                                              1389
                                                                                                                                                                                                                                                                                                                 1329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1181
                                                                                                                                                                                                                                                                                                                                                                                                                                                         1240 -PGAEGVTPICLDSLKLDNWPSQAPGLHLH--GDNLAYVIYTSGSTGQPKGVG--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                178;
                                                                                                                                                                                                                                                                                                                                                                                                                        96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                   RIEPEEIQARLLAQPGVAQAVVVIREGVAGSQLVGYYTGAVGAEAEA---
                                                                                                                                                                                                                                              RLFSGGEALPAE.
                                                                                                                                                                                                                                                                                                                                                IDWMALNGINLALAWSGQ------EAIWQRVYLALGLTQABINEFFTGPAFLAWGRMG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GPG----PAADFSVSVERALAAKPGLDTYSLGGGGAARVRVRGSTGVAAAAGLHRYLRD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VAICAERSPQLLVGLLAIVKAGGAYVPLDPDYPSERLAYMLADSGVELLLTQAHLFERL-
GLFGALEAVNGGPEAARLFPNSTMVGTGMAPEGISQNEVVYSLMAELGWRK-----DPVPD 470
                                                                                                     LGLARGYLGRPALSAERFVADPFSAAGERLYRTGDRARWNADGVLEYLGRLDQQVKLRGF
                                                                                                                                                                                                                                                                             NLHTWDGPLPPSWHIKQLYLQHRVLDQMRSFGMTPVLPAFAGHVPEAVTRVFPQVNVTKM 265
                                                                                                                                                                                                                                                                                                               CFWPLVTGCRLVLAAPGEHRDPARLVELVRQFGVTTLHFVPPLLQLFIDEPGVAACGSLR
                                                                                                                                                                                                                                                                                                                                                                                   --NTHAALA-ERLOWMOATYTLDGDDVLMOKAP---
                                                                                                                                                                                                                                                                                                                                                                                                                    FCGCHVAWSGSOLRLPRPLPAVPGE--LTEATPNRYRYYONVCTOSYSFVWWDWARWERE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VAVAA-----AVGVLLLAGAGGA------AGDEAREAAAVRA-LVARLL
                                                                                                                                                                                                         GSWGHFNCSYSCSFLLAPED----PIFPIIGSLFLRELIKEFGTDHIYGADTFNEM----
                                                                                                                                                                          ----HWQC-----RAEDGERSPIGRPLGNVVCRVLDAEF---NLLPAGVAGELCIGG 1473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4342 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                    PAQIRAVLGAVP---RGRLLVLDLFAESQPV--YTRTASFQGQPFIWCMLHNFGGNH
                                                                                                                                        -----QPPSSEPSYLAAATTAVYEAMTAVDTEAVWLLQGWL-----FQHQPQFWG- 362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ohlsen
Xu HH;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ID No 5107; 511pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ŗ
                                                                                                                                                                                                                                              ----LRNRVLQR-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             l%; Score 121; Di
1%; Pred. No. 2.5.
101; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Zyskind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ¥,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Wall
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 22;
.5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                318;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'n
                                                                                                                                                                                                                                              -LPAVALHNRYGPTET--AINVT--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Trawick
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 4342;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         electronic
                                                                                                                                                                                                                                                                                                                                                                                     ----VSFDVSVW--E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ı O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Carr
                                   ---EQNQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2
                                   1584
                                                                      414
                                                                                                       1533
                                                                                                                                                                                                                                            1428
                                                                                                                                                                                                                                                                                                                 1388
                                                                                                                                                                                                                                                                                                                                                                                     1328
                                                                                                                                                                                                                                                                                                                                                                                                                                                         1289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1239
                                                                                                                                                                                                           317
                                                                                                                                                                                                                                                                                                                                                  205
                                                                                                                                                                                                                                                                                                                                                                                                                      153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                44;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ín
```

```
RASSULT 6
AAW22
XX AAW2
XX AAW2
XX AAW2
XX Tyla
XX Tyl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                  EP791655-A2
                                                                                                                                                                                                                                                                                                                                  Domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Tylactone s polyketide;
                                                                                                                                                                                                                                                                                  Domain
                                                                                                                                                                                                                                                                                                                                                                               Domain
                                                                                                                                                                                                                                                                                                                                                                                                                            Domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 27-FEB-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAW22601;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAW22601 standard; Protein; 4472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1752
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1585 RLRAALQA----ELPEYMVPTQLMRLAQMPLGPS-GKLDTRALPEPVWQQREHVEPRTE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GWAMDIFARELGALYEAFLDDR------ESPLEPLPVQ--YLDYSVWQRE 1908
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       L-----VSHPDAGAAWRLLLRSVYNCS--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SALDRDSROOHLOTLA-DSEAHRPFDLESGPLLRVCMVKMAEREHYLVVTLHHIV----TE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PALD-----EVLASDSRFILGSWIEQA---RAAAVSEAEADFYEQNSRYQLTLWGPE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NVGGLARLSGPLDVARFEAALQALVQ-RHETLRTTFPSVDGVPVQRVHGDGGLHMDWQDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LQRRIAAIWSEVLGLPRVGLRDDFFELGGHSLLATRIVSRTRQACDVELPLRALFEASEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GNILDYANKOLAGIVANYYTPRWRLFLEALVDSVAQGIPFQQHQFDKNVFQLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EAFCEQVRAAQAAGRTDSHGAIRRIDREQPVPLSYSQQRMWFLWQL----EPD----SPAY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            synthase gene cluster; tylG gene; multifunctional protein;
s; tylactone synthesis; antibiotic; tylosin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  synthase ORF1 protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 fradiae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ---DLLDLTR---QAVQELVSLYYEEARSAYLSKELASLLRA----GGV-LAYELL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    954..1038
                                                                                                                                                                                                                                                                                                                               3149..3477
                                                                                                                                                                                                                                                         note= "dehydratase
                                                                                                                                                                                                                                                                                                                                                                            576..2999
                                                                                                                                                                                                                                                                                                                                                                                                                            2469..2552
                                                                                                                                                                                                                                                                                                                                                                                                                                           note= "ketoreductase domain,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         note= "ketosynthase domain, KS1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           note= "acyl carrier protein domain, ACP(s)"
                                                                                                                                                                                                                                                                                  502..368
                                                                                                                                                                                                                                                                                                      note= "acyltransferase domain, AT2
                                                                                                                                                                                                                                                                                                                                                        note=
                                                                                                                                                                                                                                                                                                                                                                                                   note= "acyl carrier protein domain,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  note= "acyltransferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     060..1483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -GEACRGHNRSPLVRRPSLQMNTSIWYNRSDVFEAWRLLLTSAPSLATSPAF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ..1934
                                                                                                                                                                                           . 4385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  "encoded by
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     "ketosynthase domain, KSq(s)"
                                                                                                                                                                  "acyl carrier
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        "acyltransferase
                                                                                                                                                                                                               setoreductase
                                                                                                                                                                                                                                                                                                                                                      cetosynthase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GIG
                                                                                                                                                                                                                                                            domain, DH2
                                                                                                                                                                  protein domain,
                                                                                                                                                                                                                                                                                                                                                        domain, KS2"
                                                                                                                                                                                                               domain,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        domain, AT(s)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               domain,
                                                                                                                                                                                                                                                                                                                                                                                                                                                  KR1"
                                                                                                                                                                                                                 KR2 "
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AT1
                                                                                                                                                                    ACP2'
                                                                                                                                                                                                                                                                                                                                                                                                        ACP1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             705
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1866
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6
5
2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                55
6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1698
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1638
```

19-FEB-1997;

97EP-0301056

```
Ś
                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                              B
                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     멼
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                Ś
                                                 밁
                                                                                Ś
                                                                                                                    밁
                                                                                                                                                                                      밁
                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local S
Matches 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAW22601-W22605 represent proteins encoded by the tylactone synthase gene cluster of the invention. The gene cluster is also referred to as the tylG gene, and was isolated from Streptomyces fradiae. These sequences are multifunctional proteins which direct the synthesis of the polyketide tylactone, isolated from Streptomyces fradiae. Tylactone is the basic building block of the antibiotic tylosin. The DNA sequence can be modified so as to alter the type of carboxylic acids incorporated, the number of carboxylic acids incorporated and/or the post-condensation reactions performed, thereby resulting in novel tylosin-related
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (ELIL ) LILLY & CO ELI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     encoding Streptomyces fradiae tylactone synthase domain duction of tylosin-related polyketide compounds
                                                                                                                                                                                                                                                                                                                                                                                              1896
                                                                                                                                                                                                                                                                                                                                                                                                                                                                1839
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1686
                                                   2131
                                                                                                                      2071
                                                                                                                                                                                        2029
                                                                                                                                                                                                                                                         1989
                                                                                                                                                                                                                                                                                                                             1951
                                                                                                                                                                                                                        343
                                                                                                                                                                                                                                                                                            293
                                                                                                                                                                                                                                                                                                                                                            234
                                                                                                                                                                                                                                                                                                                                                                                                                               182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        tch 3.1%; Score 121; DB 18; al Similarity 21.6%; Pred. No. 2.6; 176; Conservative 71; Mismatches 280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4
8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BS,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4
DAGAAWR----
                                                                                                                                                                                                                                                                                                                                                                                                                               LGLTQAE---INEFFTGPAFLAWGRMGNLHTWDGPLPPSWHIKQLYL-----QHRVLDQM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                -FDAGYWFRNLRNRVEFSAVVGGLLEEGHRRFIEVSAHPVLVHAIEQTAEAA--DRSVHA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RHVEDLKGELERVLSGIRPRSPRVPVCSTVAGEQPGEPV---------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RYLRDFCG-CHVAWSGSQLRLPR-PLPAV-----PGELTEATPNRYRYYQNVCTQSYSFV 143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FSVSVERALAAKPGLDTYSLGGGGAA-----RVRVRGSTGVAAAAGLH------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VDVAAVVGHSQGEIAAATVAGALSLÉ--DAAAVVÁLRÁGLIGRYLAGRGAMAAVPLPAGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VAVAAAV---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pages 66-80; 220pp; English
                                                                                                                                                                                                                                                                                                                                                            RSFGMTPVLPAFAGHVPEAVTRVFPQVNVTKMGSWGHFNCSYSCSFLLAPEDPIFP-IIG
                                                                                                                                                                                                                                                                                                                                                                                              TGTLRRQDDSPHRLLTSTA-EAWAHGATL-TWDPALPPG-HLTTLPTYPFNHHHYWLD--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WWDWARWER----EIDWMALNGINL-------ALLAWSGQEAIWQRVYLLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ----VEAGLAKWPGVEVAAVNGPASTVVSGDRRAVAGYVAVCQAEGVQARLIPVDYASHS
                                                   ELTRTPETSQPPQTPERLPQTPNRRALELAAAVLAGRDGEDQVAVRASGIYGRRVSRAAA
                                                                                   RLFPNSTMVGTGMAPEGISQ--NEVVYSLMAELGWRKDPVPDLAAWVTSFAARRYGVSHP
                                                                                                                    AVSDIĞVPAARVWALTRRAVAVVPGETPQDAĞAQLWGFĞRVAALELPDIWGGLIDLPETA
                                                                                                                                                                                        AEVAELL -----KPSMESAGEENTTVVSLLGLVP-----STDAVRTSIALLQ
                                                                                                                                                                                                                       TEAVWLLQGWLFQHQPQFWGPAQ----IRAVLGAVPRGRLLVLDLFAESQPVYTRTASFQ
                                                                                                                                                                                                                                                                                          SLFLRELIKEFGTDHIYGADTFNEMQPPSSEPSYLAAATTAVYEAMTAV------D
                                                                                                                                                                                                                                                                                                                           ----TTPTTPATTTQSPTDAWR----YRVT----WK-----ALTESSPVRPHSIG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4472 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Kuhstoss SA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             96US-0012078
-LLLRSVYNCSGEACRGHNRSPLVRRPSLOMNTSIWYNRSDVFEAWRLLL: | | | | | : |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -GVLLLAGAGGAAGDEAREAAAVRALVARLLG------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Rosteck
                                                                                                                                                                                                                                                           -VAPPTTDGELLDGLTTVLSERGASVARLEVPIGARR 2028
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PR,
                                                                                                                                                       -HNFGGNHGLFGALEAVN-----GG----PEAA 430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sutton
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            280;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 4472;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            288;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PGPAAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                    2190
                                                                                                                                                                                                                                                                                                                                                               292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1838
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1743
                                                                                                                                                                                         2070
                                                                                                                                                                                                                                                                                                                                                                                                                                 233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         90
                  544
                                                                                                                                                                                                                                                                                            342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            44
```

```
RABSULT 7
AAW2260
ID AAW3
XX AAW2
XX AAW2
XX Y11
DT 27-H
XX Tyla
XX Tyla
XX Tyla
XX Iyla
XX Iy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
  AAW22603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Tylactone synthase gene cluster; tylG gene; multifunctional polyketide; tylactone synthesis; antibiotic; tylosin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Tylactone synthase ORF3 protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAW22603;
AAW22601-W22605 represent proteins encoded
                                               Claim 9; Pages 86-98; 220pp; English.
                                                                                           DNA encoding Streptomyces fradiae tylactone synthase production of tylosin-related polyketide compounds
                                                                                                                                                                       WPI; 1997-418046/39.
N-PSDB; AAT80413.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   27-FEB-1998
                                                                                                                                                                                                                                                                                                                                              22-FEB-1996;
                                                                                                                                                                                                                                                                                                                                                                                                19-FEB-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                               27-AUG-1997
                                                                                                                                                                                                                                                                                             (ELIL ) LILLY & CO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2191 AGAASWQPSGTVLITGGMGAIGRR-----LARRLAAE-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     545
                                                                                                                                                                                                                                                BS,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AYAAANAALDALAERRRAAGLPATSVAWGLWGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A-AVSEAEADFYEQNSR-----YQLTLWGPEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGILDDÁVIDTLSPESFETVRGAKVCGAELLHQLTADIKGLDAFVLFSSVTGTWGNAGQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TSRRGPEAPGAA------ELAEELRGHGCEVVHAACDVAERDALAALVTAYPPNAVFHT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TS----APSLATSPAFRYDLLD-------LTROAVQELVSLY-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ---YEEARSAYLSKELASLLRAGGVLAYELLPALDEVLASDSRFLL----
                                                                                                                                                                                                                                                Kuhstoss
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (first entry)
                                                                                                                                                                                                                                                                                                                                              96US-0012078
                                                                                                                                                                                                                                                                                                                                                                                                97EP-0301056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3274..3453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1178..1356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            note= "dehydratase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             note= "ketosynthase domain,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          note= "acyltransferase domain, AT4"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            'note= "ketosynthase domain,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          note= "ketoreductase domain,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            note= "acyl carrier protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           note= "encoded by GTG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           note= "acyltransferase domain, AT5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           note= "ketoreductase domain, KR'4"
                                                                                                                                                                                                                                                                                                  ELI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Protein;
                                                                                                                                                                                                                                                SA,
                                                                                                                                                                                                                                                Rosteck
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3729
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              carrier protein domain,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ä
                                                                                                                                                                                                                                                PR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              domain,
                                                                                                                                                                                                                                                   Sutton
     γd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KS5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KS4"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 domain,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  X85"
     the
     tylactone synthase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACP5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACP4"
                                                                                                                             domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -GSWLEQARA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            --GAERLVL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            627
```

```
B
                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene cluster of the invention. The gene cluster is also referred to as the tylG gene, and was isolated from Streptomyces fradiae. These sequences are multifunctional proteins which direct the synthesis of the polyketide tylactone, isolated from Streptomyces fradiae. Tylactone is the basic building block of the antibiotic tylosin. The DNA sequence can be modified so as to alter the type of carboxylic acids incorporated, the number of carboxylic acids incorporated, reactions performed, thereby resulting in novel tylosin-related
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1039
                                                                                                                                                                                                                                                  1237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        878
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    192;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                    KTGLVDRLDSLLDEPDPLLEDGELDAFVVFSSVAGVWGGAGQGGYAAGTAYLD-ALAECR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IVSLLALAGDHAGADGARPVVPAGLAASLALIQAAGDAGTEAGLW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EPSYLA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LLVVPEASADPSVAEGVARELTARGATVESLTVEPGADRSRLRGLLVDATERDEAGPLRG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FLLAPEDPIFPIIGSLFLRELIK------EFGTDH-----IYGADTFNEMQPPSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WWDWARWER----EIDWMALNGINL----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RYLRDFCG-CHVAWSGSQLRLPR-PLPAV-----PGELTEATPNRYRYYQNVCTQSYSFV 143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ----VEAGLAKWPGVEVAAVNGPASTVVSGDRRAVAGYVAVCQAEGVQARLIPVDYASHS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VAVAAAV----GVLLLAGAGGAAGDEAREAAAVRALVARLLG------
                                                                                                                                                                                                                                                                                                  SPLVRRPSLOMNTSIWYNRSDVFEAWRLLITSAPSLATSPAFRYDLLDLTROA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                      RQLAATLAGRPAEDQVALRA--SGAYGRRLVRASAAGGADGWRPRG-----TVLVV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PAQIRAVIGAVPRGRILVIDIFAESOPV---YTRTASFQGQPFIWCMLHNFGGNHGLFG-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RSFGMTPVLPAF-----AGHVPEAVT--RVFPQVNVTKM--GSWGHFNCSYSCS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TGTLRRQDDSPHRLLTSTA-EAWAHGATL-TWDPALPPG-HLTTLPTYPFNHHHYWLD--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RHVEDLKGELERVLSGIRPRSPRVPVCSTVAGEQPGEPV-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FSVSVERALAAKPGLDTYSLGGGGAA-----RVRVRGSTGVAAAAGLH---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VDVAAVVGHSQGEIAAATVAGALSLE--DAAAVVALRAGLIGRYLAGRGAMAAVPLPAGE
SEAEADFYEQNSRYQLT
                                                                                              RAGG---VLAYELLPALDEVLASDSRFLLGSWLEQA-----
                                                                                                                                                                                                                                                                                                                                                                                                      GWRKDPVPDLAAWVTSFAARRY----GVSHP----DAGAAWRLLLRSVYNCSGEACRGHNR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LGLTQAE----INEFFTGPAFLAWGRMGNLHTWDGPLPPSWHIKQLYL-----QHRVLDQM
                                                                                                                                                                                                                                                                                                                                                        GDTAEVAGPLVRWLLGNGARRVTLSGLSGPLPEELADVAARVTV--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         - FDAGYWFRNLRNRVEFSAVVGGLLEEGHRRFIEVSAHPVLVHAIEQTAEAA--DRSVHA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3729
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  --TTPTTPATTTQSPTDAQNPADALPYKVSWKRLRDQDSLTARLDGRW--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3.0%; Score 120; DB 22.4%; Pred. No. 2.5; tive 72; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -ALEAVNGGPEAARLFPNSTMVGT-GMAPEGISQNEVVYSLMAEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ---DVPAPSOALLWGFGRVAGIE-LPHCWGGLLDLPTGPGDSGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ----AATTAVYEAMTAVDTEA-VWLLQGWLFQHQPQFWG
                                                                                                                                                                                                                                               ----LVAPPAVPPTP----
                                                   LGEQMSRAGITPLDPAASLDALARAVGRRAGCV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ----ALAWSGQEAIWQRVYLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    265;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 3729
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                    -LAEMTAEALAIALSA
                                                                                                                                                                                                    EARSAYLSKELASLL
                                                                                                                                                                                                                                                                                                                                                        ---APCDPADR
                                                                                                      ----RAAAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PGPAAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                        1236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1083
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    725
                                                                                                   630
                                                                                                                                                                                                                                                                                                                                                                                                        514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        932
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         877
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    47
```

```
1393
TVADIDWERFASAYTAT
1409
```

맑

```
A splice variant of a signal transduction polypeptide
                                                  AAB30570;
                                                                            AAB30570
                          19-MAR-2001
                          (first
                                                                           Protein;
                        entry)
                                                                            871
                                                                            A
```

hypertrophic cardiomyopathy; restrictive cardiomyopathy; hypertension; mitral valve disease; aortic valve disease; tricuspid valve disease; atherosclerosis; cardiac tumour; microbial infection; splice variant myocardial infarction; cardiac arrhythmia; arteriosclerosis; disease; angina pectoris; cardiomyopathy;

26-OCT-2000

11-APR-2000; 2000WO-US09488

16-APR-1999; 9908-0129553

(SCIO-) SCIOS INC

Ξ Stanton L, Kong

2001-007013/01

Novel h19G5 polypeptides capable of regulating signal transduction and exhibiting kinase activity useful for identifying antibodies to treat cardiac diseases, and additional mediators of signal transduction -

Claim 1; Page 74-76; 81pp; English

ARBSULT 8
ARBSULT 19-M
XX 1-19-M
XX 2-10-M
XX Sign
XX W The present sequence represents a splice variant of human in signal CC transduction polypeptide. The polypeptide is designated H19G5. The CC protein is capable of regulating signal transduction and exhibits kinase CC activity. The H19G5 transcript is expressed in the heart. H19G5 CC polypeptides and polymucleotides are useful for preventing or treating a CC cardiac disease, such as congestive heart failure, dilated congestive CC cardiomyopathy, hypertrophic cardiomyopathy, restrictive cardiomyopathy, cardiac valve disease, acrtic valve disease or tricuspid valve disease, cC angina pectoris, myocardial infarction, cardiac arrhythmia, pulmonary, CC arterial or rhenovascular hypertension, arteriosclerosis, atherosclerosis and cardiac tumours in humans. The polypeptide is also useful for CC detecting the expression of a protein capable of regulating signal CC transduction or the expression of a protein capable of acting as a donor CC cell samples, and therefore used in humans for localization and CC cell samples, and therefore used in humans for localization and of microbial infection.

Sequence 871 AA;

δ 밁 Ś Query Match Best Local S Matches 165 99 Similarity SLGG-GGAARVRVRGSTGVAAAAGLHRYLRDFCG-----CHVAWSGSQLR----ĠSASQASSSQVSSLRVGSSQVGTEPĠPSLDAEGWTQEAEDLSDSTPTLQRPQEQATMRKF GGAAGDEAREAAAVRALVARL-LGPGPAAD---FSVSVERALAAKPGLD-----3.0%; 97; Score 118.5; Di Pred. No. 0.34; 7; Mismatches DB 22; 307; Indels Length 871; 319; ---TY 08 65

Ś 뫄 Ş 뫄 8 Ś

Ş 뮍 δ 밁 \$ 밁 5 밁 Ś 밁 δ 밁 S 뮍 Š 밁 Ś 밁 S

밁

Š

밁 Ś

```
ARESULT 9
AAE16274
ID AAE18
XX AAE16
AC AAE1
XX AAE16
XX AAE1
XX AAE1
XX AAE1
XX Huma

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   12
                                 Human; kinase; PKIN-20; cancer; leukaemia; adenocarcinoma; osteoporosis; immune disorder; atherosclerosis; Crohn's disease; Hodgkin's disease; Acquired Immune Deficiency Syndrome; AIDS; Addison's disease; namemia; allergy; asthma; adult respiratory distress syndrome; multiple sclerosis; autoimmune thyroiditis; bronchitis; diabetes mellitus; osteoarthritis; Good pasture's syndrome; Graves' disease; pancreatitis; gsoriasis; rheumatoid arthritis; ulcerative colitis; cirrhosis; Cushing's syndrome;
                                                                                                                                                                                                                                                                                                                                                          Human
                                                                                                                                                                                                                                                                                                                                                                                                                                     26-MAR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAE16274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           622
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      562
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             183
                                                                                                                                                                                                                                                                                                                                                          kinase PKIN-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SQSEEQQEARAESPLPQVSARPVPEVGRAPTRSSP----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FLEALVDSVAQG---IPFQQHQFDKNVFQL-EQAFVLSKQRYPSQPRG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AVQELVSLYYEEARSAYLS-KELASLLRAGGVLAYELLPALDEVLASDSRFLLGSWLEQA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      QGRSAQPLPSTKTFAFQTQIQRGRFSVVRQCWEKASGRALAAKIIPYHPKDKTAVLREYE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RGHNRSPLVRRPSLQMNTSIWYNR-SDVFEAWRLLLTSAPSLATSPAFRYDLLDLTR--Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WRLLLRSVYNC----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PEGISQNEVVYSLMAELGWRKDPVPD------LAAW--VTSFAARRYGVSHPDAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LAAATTAVYEAMTAVDTEAVWLLQGWLFQHQPQFWGPAQIRAVLGAVPRG--RLLVLDLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GLASFRISGIKSWDRAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SWGHFNCSYSCSFLLAPEDPIFPIIGSLFLRELIKEFGTDHIYGADTFNEMQPPSSEPSY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SRSLFHFPG----RHLPLDEPAELGLRERVKASVEHISRILKGRPEGLEKEGPP---RKKP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DIGQVSLVQIRDLSGDAEAADTISLDISEVDPAYLNLSDLYDIKYLPFEFMIFRKVPKSA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SLGGRGGYAGVAGYGTFAFGGDAG-----GMLGQGPMWARIAWAVSQSEEEEQEEARAE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           YLETMAPELLEGQGAVP-----QTDIWAIGVTAFIMLSAEYPVSSEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LSATQYLHNQHILHLDLRSENMIITEYNLL-----KVVDLGNAQSLSQEKVLPSDKFKD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ALKGLRHPHLAQLHAAYLSPRHLVLILEL - CSGPELLPCLAE - RASYSESEVKDYLWOM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WITHASDIFDCCYLTSKLSRGGTYTFRTACVSKAGMGPYSSPSEQVLLGGPSHLASEEES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AEDLGVYT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AESOPVYTRTASFQGQPFIWCMLHNFGGNHGLFGALEAVNGGPEAARLFPNSTMVGTGMA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LGQSVTLACQVSAQPAAQATWSKDGAPLE-----SSSRVLISATLKNFQLLTILVVV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LPPSWHIKQLYLQHRVLDQMRSFGMTPVLPAFAGHV-----PEAVTRVFPQVNVTKMG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QPEPPSPMAEEELAEFPEPTWPWPGELGPHAGLEITEESEDVDALLAEAAVGRKRKWSSP
                                                                                                                                                                                                                                                                                                                                                                                                                                     (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ----REI--DWMALNGINLAL----AWSGOEAIWORVYLAL-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -GLTQAEINEF-----FTGP-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -VSEAEADFYEQN---SRYQLTLWGPEGNILDYANKQLAGLVANYYTPRWRL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -----PCPDIGEVYADGVLLVWKPVESYGPVTYIVQCSLEGGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Protein;
                                                                                                                                                                                                                                                                                                                                                      protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -LP----RPLPAVPGELTEATPNRYRYYQNVCTQSYSFVWWDWARWE
    cerebral palsy;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               871
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CSVSNALGTVTTTGVLR-----KAER--PSSS-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ጅ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -AFLAWGRMGNLHTWDGP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ----EPTPWE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               774
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ---SGEAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     566
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    678
```

В

Ś ₽

밁 S 뮍 Ś 밁 Ś

Query Match
Best Local Similarity 18.4
Matches 165; Conservative

18.6%;

97;

Score 118.5; Di Pred. No. 0.34; 7; Mismatches

Indels Length

Gaps

40;

DB 307; 23; Sequence

B

Ś 片 á Db 8 밁 Ş

밁 Ś В 5 В

```
WWW. Some and the complete of 
                                              corresponding cDNAs. A composition associated with decreased expression of PKIN and a composition comptising PKIN antagonist is useful for treating a disease or condition associated with decreased expression of PKIN and a composition comprising PKIN antagonist is useful for treating comparison of pkin antagonist is useful for treating disease or condition associated with overexpression of PKIN. The complete include cancer (leukaemia, adenocarcinoma, lymphoma, melanoma, myeloma, sarcoma, teratocarcinoma, Hodgkin's disease); immune disorder (Acquired Immune Deficiency Syndrome (AIDS)) asthma. Addisor's disease, competitive, multiple sclerosis, doal trespiratory distress syndrome, continue, multiple sclerosis, Good pasture's syndrome, Graves' disease, competities, osteoprosis, good pasture's syndrome, graves' disease, competities, contains, parasitic, fungal, viral, protozoal and helminthic infections) competities, contains, ulcerative colities, contains, syndrome, viral, protozoal and helminthic infections) composities and carteriosclerosis, cirrhosis, hepatitis, consciular disease (arteriovenous fistula, hypertension, vasculitis, candio vascular disease, chronic bronchitis, lung tumours); lipid consciuty of a test compound and in gene therapy. The present sequence is human pxin-20 protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ramkumar J, Griff
Baughn MR, He A,
Lo TP, Khan F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            15-JUN-2000;
23-JUN-2000;
30-JUN-2000;
07-JUL-2000;
13-JUL-2000;
25-AUG-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Yue H, Lai
Gandhi AR,
Ramkumar J,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     cardiovascular disease; hypertension; vasculitis; myocarditis; obesity; congestive heart failure; ischaemic heart disease; lung tumour; gout; fatty liver; Niemann-Pick's disease; gene therapy.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              New polypeptides, useful for diagnosing, treating or preventing disorders of growth and development, cardiovascular and lipid, a diseases such as cancer, comprise human kinase polypeptides
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       14-JUN-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WO200196547-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Key
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          The invention relates to human kinase PKIN proteins
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Claim 1; Page 164-165; 197pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Grether M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (INCY-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2002-090207/12.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Lal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       INCYTE GENOMICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        P, Bandman O, Borowsky ML, Au-Young J, Lu Y;
Tribouley CM, Walia NK, Yao MG, Lu DAM, Greenwald SF
Griffin JA, Kearney L, Burford N, Nguyen DB, Tang Y
He A, Thornton M, Hafalia A, Patterson C, Gururajan
n F, Recipon SA, Azimzai Y, Policky JL, Ding L;
Elliott VS, Thangavelu K, Batra S, Ison CH;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ; 2000US-212073P.
; 2000US-213467P.
; 2000US-215651P.
; 2000US-216605P.
; 2000US-218372P.
; 2000US-228056P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2001WO-US19444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Location/Qualifiers 575..827
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         "Eukaryotic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Protein_kinase_domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         protein kinase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          and their
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SR;
YT;
1 R;
```

```
В
 RESULT 10
AAB30567
ID AAB30
XX
XX
AC AAB30
XX
XX
AC AAB30
XX
XX
AMinc
XX
XX
AMinc
XX
XX
XX
AMinc
XX
XX
XX
XX
XX
XX
XX
COnge
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       뮍
                                                                                                                                                                                                            믕
                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                   B
                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                   5
                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                               5
                                                                                                                                                                                                                                                                                                                                                                                                                                                   β δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5
 Signal transduction; H19G5; kinase; cardiac disease; angina pectoris; congestive heart failure; dilated congestive cardiomyopathy;
congestive
                                                                          19-MAR-2001
                                            Amino acid sequence
                                                                                                                                   AAB30567 standard; Protein;
                                                                                                                                                                                                                                                                       679
                                                                                                                                                                                                                                                                                                                                 622
                                                                                                                                                                                                                                                                                                                                                              567
                                                                                                                                                                                                                                                                                                                                                                                          562
                                                                                                                                                                                                                                                                                                                                                                                                                       510
                                                                                                                                                                                                                                                                                                                                                                                                                                                     502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  110
                                                                                                                                                                                                            733
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WRLLLRSVYNC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LPPSWHIKQLYLQHRVLDQMRSFGMTPVLPAFAGHV-----PEAVTRVFPQVNVTKMG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SLGG-GGAARVRVRGSTGVAAAAGLHRYLRDFCG----CHVAWSGSQLR-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GSÁSQASSSQVSSLRVGSSQVGTEPGPSLDAEGWTQEAEDLSDSTPTLQRPQEQVTMRKF
                                                                                                                                                                                                                                                                                                  RAAA----VSEAEADFYEQN----SRYQLTLWGPEGNILDYANKQLAGLVANYYTPRWRL
                                                                                                                                                                                                                                                                                                                                 ALKGLRHPHLAQLHAAYLSPRHLVLILEL--CSGPELLPCLAE-RASYSESEVKDYLWQM
                                                                                                                                                                                                                                                                                                                                                            AVQELVSLYYEEARSAYLS-KELASLLRAGGVLAYELLPALDEVLASDSRFLLGSWLEQA
                                                                                                                                                                                                                                                                                                                                                                                         OGRSAOPLPSTKTFAFQTQIQRGRFSVVRQCWEKASGRALAAKIIPYHPKDKTAVLREYE
                                                                                                                                                                                                                                                                                                                                                                                                                     RGHNRSPLVRRPSLQMNTSIWYNR-SDVFEAWRLLLTSAPSLATSPAFRYDLLDLTR--Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LGQSVTLACQVSAQPAAQATWSKDGAPLE-----SSSRVLISATLKNPQLLTILVVV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LAAATTAVYEAMTAVDTEAVWLLQGWLFQHQPQFWGPAQIRAVLGAVPRG--RLLVLDLF 384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GLASFRLSGLKSWDRAP--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SWGHFNCSYSCSFLLAPEDPIFPIIGSLFLRELIKEFGTDHIYGADTFNEMQPPSSEPSY 326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SRSLFHFPG---RHLPLDEPAELGLRERVKASVEHISRILKGRPEGLEKEGPP---RKKP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QPEPPSPMAEEELAEFPEPTWPWPGELGPHAGLEITEESEDVDALLAEAAVGRKRKWSSP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -----GLTQAEINEF-----FTGP------AFLAWGRMGNLHTWDGP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DIGQVSLVQIRDLSGDAEAADTÍSLDISEVDPÁYLNLSDLYDIKÝLPFEFMIFRKVPKSA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SLGGRGGYAGVAGYGTFAFGGDAG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGAAGDEAREAAAVRALVARL-LGPGPAAD---FSVSVERALAAKPGLD------
                                                                                                                                                                                                          YLETMAPELLEGQGAVP-----QTDIWAIGVTAFIMLSAEYPVSSEG
                                                                                                                                                                                                                                       FLEALVDSVAQG---IPFQQHQFDKNVFQL-EQAFVLSKQRYPSQPRG
                                                                                                                                                                                                                                                                     LSATQYLHNQHILHLDLRSENMIITEYNLL-----KVVDLGNAQSLSQEKVLPSDKFKD
                                                                                                                                                                                                                                                                                                                                                                                                                                                   WTTLASDIFDCCYLTSKLSRGGTYTFRTACVSKAGMGPYSSPSEQVLLGGPSHLASEEES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PEGISQNEVVYSLMAELGWRKDPVPD-----LAAW--VTSFAARRYGVSHPDAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AEDLGVYT-----CSVSNALGTVTTTGVLR----KAER--PSSS-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AESQPVYTRTASFQGQPFIWCMLHNFGGNHGLFGALEAVNGGPEAARLFPNSTMVGTGMA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SQSEEQQEARAESPLPQVSARPVPEVGRAPTRSSP-----EPTPWE
                                                                        (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ------PCPDIGEVYADGVLLVWKPVESYGPVTYIVQCSLEGGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REI--DWMALNGINLAL----AWSGQEAIWQRVYLAL------
                                            of a human signal transduction polypeptide
                                                                        entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -LP----RPLPAVPGELTEATPURYRYYQNVCTQSYSFVWWDWARWE
                                                                                                                                   1351
                                                                                                                                     Å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                --GMLGOGPMWARIAWAVSOSEEEEQEEARAE
                                                                                                                                                                                                              774
                                                                                                                                                                                                                                        721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           --SDETVV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SGEAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -TΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   151
                                                                                                                                                                                                                                                                                                                                                                                                                                                     561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            378
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         80
                                                                                                                                                                                                                                                                                                     677
                                                                                                                                                                                                                                                                                                                                 678
                                                                                                                                                                                                                                                                                                                                                              625
                                                                                                                                                                                                                                                                                                                                                                                          621
                                                                                                                                                                                                                                                                                                                                                                                                                       566
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      65
```

```
δ
                                                                                                                                                 밁
                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                             Ś
밁
                              5
                                                                          밁
                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                      5
                                                                                                                                                                                                                                                                                                                                                                                  Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            angina pectoris, myocardial infarction, cardiac arrhythmia, pulmonary, arterial or rhenovascular hypertension, arteriosclerosis, atherosclerosis and cardiac tumours in humans. The polypeptide is also useful for detecting the expression of a protein capable of regulating signal transduction or the expression of a protein capable of acting as a donor or acceptor molecule of a phosphate group. The monoclonal antibodies can be used as probes for detecting discrete antigens expressed by tissue or cell samples, and therefore used in humans for localization and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  The present sequence represents a human protein with putative function in signal transduction. The polypoptide is designated H1965. The protein is capable of regulating signal transduction and exhibite kinase activity. The H1965 transcript is expressed in the heart. H1965 polypoptides and polymoclectides are useful for preventing or treating a polypoptides and polymoclectides are useful for preventing or treating a cardiac disease, such as congestive heart failure, dilated congestive cardiac disease, hypertrophic cardiamyopathy, restrictive cardiamyopathy, hypertrophic cardiamyopathy, restrictive cardiamyopathy, and the disease, acric valve disease or trioughid valve disease, mitral valve disease, acric valve disease or trioughid valve disease.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Novel h19G5 polypeptides capable of regulating signal transduction exhibiting kinase activity useful for identifying antibodies to tre cardiac diseases, and additional mediators of signal transduction
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       hypertrophic cardiomyopathy; restrictive cardiomyopathy; hypertension; mitral valve disease; aortic valve disease; tricuspid valve disease; myocardial infarction; cardiac arrhythmia; arteriossclerosis; atherosclerosis; cardiac tumour; microbial infection.
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Claim 1; Page 55-57; 81pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 16-APR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     11-APR-2000; 2000WO-US09488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            26-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WO200063381-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (SCIO-)
                                                                                                                                                                                                                                                                                                                                                                                                      Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ξ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             samples, and therefore used icoring of microbial infection.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2001-007013/01
)B; AAC62285.
                                                                            656
                                                                                                               152
                                                                                                                                                   615
                                                                                                                                                                                                                              561
                                                                                                                                                                                                                                                                                                       501
                                                                                                                                                                                                                                                                 66
                                                                                                                                                                                                                                                                                                                                            19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SCIOS INC
                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Stanton L,
                                                                                                                                                                                                                                                                                                       GSASQASSSQVSSLRVGSSQVGTEPGPSLDAEGWTQEAEDLSDSTPTLQRPQEQATMRKF
QPEPPSPMAEEELAEFPEPTWPWPGELGPHAGLEITEESEDVDALLAEAAVGRKRKWSSP
                                                                            DIGQVSLVQIRDLSGDAEAADTISLDISEVDPAYLNLSDLYDIKYLPFEFMIFRKVPKSA
                                                                                                                                                     SQSEEQQEARAESPLPQVSARPVPEVGRAPTRSSP--
                                                                                                                                                                                                                              SLGGRGGYAGVAGYGTFAFGGDAG-----GMLGQGPMWARIAWAVSQSEEEEQEEARAE
                                                                                                                                                                                                                                                                 SLGG-GGAARVRVRGSTGVAAAAGLHRYLRDFCG-----CHVAWSGSQLR------
                                                                                                                                                                                                                                                                                                                                          GGAAGDEAREAAAVRALVARL-LGPGPAAD---FSVSVERALAAKPGLD------TY
                                                                                                                                                                                          1351 AA
                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 99US-0129553
                                                                                                               -REI--DWMALNGINLAL----AWSGQEAIWQRVYLAL
                                                                                                                                                                                                                                                                                                                                                                              3.0%; Score 118.5; D
18.6%; Pred. No. 0.69;
tive 97; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Kong
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ξ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              English.
                                                                                                                                                                                                                                                                                                                                                                                                                         DB 22;
                                                                                                                                                                                                                                                                                                                                                                                    307;
                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                         Length 1351
                                      AFLAWGRMGNLHTWDGP
                                                                                                                                                                                                                                                                                                                                                                                    319;
                                                                                                                                                     EPTPWE
                                                                                                                                                                                                                                                                                                                                                                                  Gaps
      775
                                                                                                                   182
                                                                                                                                                       655
                                                                                                                                                                                                                                614
                                                                                                                                                                                                                                                                                                                                                65
                                                                                                                                                                                                                                                                                                                                                                                      40;
```

Ś

LPPSWHIKQLYLQHRVLDQMRSFGMTPVLPAFAGHV-----

- PEAVTRVF PQVNVTKMG

```
RESULT 11
AAB30568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              日
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               吊
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              B
WPI; 200
N-PSDB;
                                                                                                                                                                                                                                                                                                                Signal transduction; H19G5; kinase; cardiac disease; angina pectoris; congestive heart failure; dilated congestive cardiomyopathy; hypertrophic cardiomyopathy; restrictive cardiomyopathy; hypertension; mitral valve disease; aortic valve disease; tricuspid valve disease; myocardial infarction; cardiac arrhythmia; arteriosclerosis;
                                                                                                                                                                                                                                                                                                                                                                                                                         A full
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAB30568 standard; Protein; 1610
                                                                                                                                                         11-APR-2000; 2000WO-US09488
                                                                                                                                                                                             26-OCT-2000
                                                                                                                                                                                                                             WO200063381-A1
                                                                                                                                                                                                                                                                 Homo sapiens
                                                                                                                                                                                                                                                                                                  atherosclerosis; cardiac
                                                                                                                                                                                                                                                                                                                                                                                                                                                            19-MAR-2001
                                                  Zeng W,
                                                                                        (SCIO-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1042
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1213 YLETMAPELLEGOGAVP-----QTDIWAIGVTAFIMLSAEYPVSSEG 1254
                2001-007013/01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          626
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       982
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                911
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         830
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              776
                                                                                                                                                                                                                                                                                                                                                                                                                         length
                                                                                        SCIOS
 AAC62286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GLASFRLSGLKSWDRAP--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SRSLFHFPG---RHLPLDEPAELGLRERVKASVEHISRILKGRPEGLEKEGPP---RKKP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SWGHFNCSYSCSFLLAPEDPIFPIIGSLFLRELIKEFGTDHIYGADTFNEMQPPSSEPSY 326
                                                Stanton L,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LSATQYLHNQHILHLDLRSENMIITEYNLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RAAA----VSEAEADFYEON---SRYOLTLWGPEGNILDYANKOLAGLVANYYTPRWRL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AVQELVSLYYEEARSAYLS-KELASILRAGGVLAYELLPALDEVLASDSRFILGSWLEQA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               QGRSAQPLPSTKTFAFQTQIQRGRFSVVRQCWEKASGRALAAKIIPYHPKDKTAVLREYE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RGHNRSPLVRRPSLQMNTSIWYNR-SDVFEAWRLLLTSAPSLATSPAFRYDLLDLTR--Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AESQPVYTRTASFQGQPFIWCMLHNFGGNHGLFGALEAVNGGPEAARLFPNSTMVGTGMA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FLEALVDSVAQG----IPFQQHQFDKNVFQL-EQAFVLSKQRYPSQPRG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ALKGLRHPHLAQLHAAYLSPRHLVLILEL--CSGPELLPCLAE-RASYSESEVKDYLWOM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WTTLASDIFDCCYLTSKLSRGGTYTFRTACVSKAGMGPYSSPSEQVLLGGPSHLASEEES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WRLLLRSVYNC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PEGISQNEVVYSLMAELGWRKDPVPD-----LAAW--VTSFAARRYGVSHPDAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LGQSVTLACQVSAQPAAQATWSKDGAPLE-----SSSRVLISATLKNFQLLTILVVV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LAAATTAVYEAMTAVDTEAVWLLQGWLFQHQPQFWGPAQIRAVLGAVPRG--RLLVLDLF
                                                                                        INC.
                                                                                                                                                                                                                                                                                                                                                                                                                         human signal transduction polypeptide
                                                    Kong
                                                                                                                                                                                                                                                                                                    tumour; microbial infection
                                                    Ή
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -CSVSNALGTVTTTGVLR-----KAER--PSSS-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            --PCPDIGEVYADGVLLVWKPVESYGPVTYIVQCSLEGGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -TFLREL-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ----KVVDLGNAQSLSQEKVLPSDKFKD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SGEAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1041
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 943
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       910
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                        덩
                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          á
                                                        밁
                                                                                    Ś
                                                                                                                        밁
                                                                                                                                                        Ś
                                                                                                                                                                                           밁
                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               The present sequence represents a human protein with putative function CC in signal transduction. The polypeptide is designated H1965. The protein CC is capable of regulating signal transduction and exhibits kinase CC activity. The H1965 transcript is expressed in the heart. H1965 CC polypeptides and polynucleotides are useful for preventing or treating a CC cardiac disease, such as congestive heart failure, dilated congestive cardiomyopathy, hypertrophic cardiomyopathy, restrictive cardiomyopathy, CC mitral valve disease, aortic valve disease or tricuspid valve disease, acrtic valve disease or tricuspid valve disease, CC angina pectoris, myocardial infarction, cardiac arrhythmia, pulmonary, CC arterial or rhenovascular hypertension, arteriosclerosis, atherosclerosis CC and cardiac tumours in humans. The polypeptide is also useful for CC detecting the expression of a protein capable of regulating signal CC transduction or the expression of a protein capable of acting as a donor CC or acceptor molecule of a phosphate group. The monoclonal antibodies can Cb used as probes for detecting discrete antigens expressed by tissue or CC cell samples, and therefore used in humans for localization and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Novel h19G5 polypeptides capable of regulating signal transduction and exhibiting kinase activity useful for identifying antibodies to treat cardiac diseases, and additional mediators of signal transduction
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Claim 1; Page 61-65; 81pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence
                                                                                                                                                                                                                                                                    1089
                                                                                                                                                                                                                                                                                                                                        1035
                                                                                                                                                                                               1118
                                                                                                                                                                                                                                 327
                                                                                                                                                                                                                                                                                                                                                                                                                                             183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      110
                      494
                                                                                                                                                                                                                                                                                                    267
                                                                                                                                                                                                                                                                                                                                                                          214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 915
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   165;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                      WRLLLRSVYNC--
                                                                                                                                                                                                                                                                                                                                                                        LPPSWHIKQLYLQHRVLDQMRSFGMTPVLPAFAGHV-----PEAVTRVFPQVNVTKMG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DIGQVSLVQIRDLSGDAEAADTİSLDISEVDPAYLNLSDLYDIKYLPFEFMIFRKVPKSA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SQSEEQQEARAESPLPQVSARPVPEVGRAPTRSSP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SLGG-GGAARVRVRGSTGVAAAAGLHRYLRDFCG-----CHVAWSGSQLR--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GSASQASSSQVSSLRVGSSQVGTEPGPSLDAEGWTQEAEDLSDSTPTLQRPQEQATMRKF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGAAGDEAREAAAVRALVARL-LGPGPAAD---FSVSVERALAAKPGLD-----TY
                                                                                                                                                                                                                                                                    GLASFRISGLKSWDRAP-----TFIREL---
                                                                                                                                                                                                                                                                                                                                      SRSLFHFPG---RHLPLDEPAELGLRERVKASVEHISRILKGRPEGLEKEGPP---RKKP
                                                                                                                                                                                                                                                                                                                                                                                                          QPEPPSPMAEEELAEFPEPTWPWPGELGPHAGLEITEESEDVDALLABAAVGRKRKWSSP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SLGGRGGYAGVAGYGTFAFGGDAG-----GMLGQGPMWARIAWAVSQSEEEEQEEARAE
                                                                                                                                                           AESQPVYTRTASFQGQPFIWCMLHNFGGNHGLFGALEAVNGGPEAARLFPNSTMVGTGMA
                                                                                                                                                                                           LGQSVTLACQVSAQPAAQATWSXDGAPLE-----SSSRVLISATLKNFQLLTILVVV
                                                                                                                                                                                                                                                                                                  SWGHFNCSYSCSFLLAPEDFIFFIIGSLFLRELIKEFGTDHIYGADTFNEMQPPSSEPSY
                                                                                           PEGISQNEVVYSLMAELGWRKDPVPD-----LAAW--VTSFAARRYGVSHPDAGAA
                                                                                                                                                                                                                               LAAATTAVYEAMTAVDTEAVWLLQGWLFQHQPQFWGPAQIRAVLGAVPRG--RLLVLDLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                             -GLTQAEINEF-----FTGP-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -REI--DWMALNGINLAL----AWSGQEAIWQRVYLAL------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3.0%;
18.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -LP----RPLPAVPGELTEATPNRYRYYQNVCTQSYSFVWWDWARWE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 97;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 118.5; I
Pred. No. 0.9;
97; Mismatches
                                                                                                                           CSVSNALGTVTTTGVLR
                                                          PCPDIGEVYADGVLLVWKPVESYGPVTYIVQCSLEGGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   307;
```

Indels Length 1610

319;

-AFLAWGRMGNLHTWDGP

213 974 182 914 151 873 109 819 9 40

1034

-EPTPWE

KAER--PSSS-----

1202

493 1240

SGEAC 509

-SDETVV

1088

326

1169

```
ARBSUTT 12
ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC ARBS5
AC A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                     The invention provides human protein kinases and protein kinase-like enzymes and polymucleotides encoding the polypeptides. The kinase polypeptides and their modulators are useful for treating a disease or disorder such as cancer, immune-related diseases, cardiovascular disease, brain or neuronal-associated disease and metabolic disorders, including cancers of tissues, cancers of hematopoietic origin, diseases of the central nervous system, diseases of the peripheral nervous system, and the control of the peripheral nervous system, diseases of the peripheral nervous system, diseases of the peripheral nervous system.
                                                                                                                                                                                                                                                                                                                                                                               Kinase polypeptides useful viral infections, diabetes,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          25-JAN-2000;
31-JAN-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           02-AUG-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WO200155356-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  vasotropic; antidiabetic; gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             osteopathic; thrombolytic; antiarteriosclerotic; antiasthmatic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      analgesic; hypotensive; hypertensive; immunosuppressive; antiallergic;
antipsoriatic; antirheumatic; antiarthritic; ophthalmological; anorectic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Protein kinase; enzyme; cytostatic; nootropic; neuroprotective; human; antiparkinsonian; virucide; antibacterial; antifungal; antimigraine;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  25-SEP-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAB85504;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAB85504 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                25-JAN-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           17-FEB-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2001-476202/51
)B; AAH46904.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       510
                                                                                                                                                                                                                                                                                           7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ģ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SUGEN
                                                                                                                                                                                                                                                                                           Page
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            YLETMAPELLEGOGAVP-----QTDIWAIGVTAFIMLSAEYPVSSEG 1513
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LSATQYLHNQHILHLDLRSENMIITEYNLL-----KVVDLGNAQSLSQEKVLPSDKFKD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RAAA-----VSEAEADFYEQN---SRYQLTLWGPEGNILDYANKQLAGLVANYYTPRWRL 677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AVQELVSLYYEBARSAYLS-KELASLIRAGGVLAYELLPALDEVLASDSRFLLGSWLEQA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OGRSAOPLPSTKTFAFQTQIQRGRFSVVRQCWEKASGRALAAKIIPYHPKDKTAVLREYE 1360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RGHNRSPLVRRPSLQMNTSIWYNR-SDVFEAWRLLLTSAPSLATSPAFRYDLLDLTR--Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FLEALVDSVAQG---IPFQQHQFDKNVFQL-EQAFVLSKQRYPSQPRG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ALKGIRHPHLAQLHAAYISPRHIVIIIEI--CSGPEILPCLAE-RASYSESEVKDYIWOM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WTTLASDIFDCCYLTSKLSRGGTYTFRTACVSKAGMGPYSSPSEQVLLGAPSHLASEEES
                                                                                                                                                                                                                                                                                                                                                      arthritis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ; 2000US-0178078.
; 2000US-0179364.
; 2000US-0183173.
; 2000US-0190162.
; 2000US-0193404.
; 2000US-0247013.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Whyte
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2001WO-US02337.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   INC
                                                                                                                                                                                                                                                                                        215; 218pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ū
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Manning
      infections
                                                                                                                                                                                                                                                                                           English
                                                                                                                                                                                                                                                                                                                                                                            for treating cancers, Alzheimer's dis
, obesity, organ transplant rejection
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ຸດ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sudarsanam
      infections
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Martinez
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  antiallergic;
   prions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ħ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      721
                                                                                                                                                                                                                                                                                                                                                                                                       disease,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       566
```

```
CC bacteria and fungi, ocular diseases, migraines, pain, sexual dysfunction, CC mood disorders, attention disorders, cognition disorders, hypotension, pypetrension, psychotic disorders, neurological disorders, dyskinesias, CC metabolic disorders, and organ transplant rejection. They are also useful for treating rhinitis, autoimmunity, atherosclerosis, psoriasis, CC osteoarthritis, asthma, chronic inflammatory pelvic disease, chronic cinflammatory bowel disease, rheumatoid arthritis, metabolic disorders cc such as diabetes, obesity, cardiovascular diseases such as reperfusion crinjury, coronary thrombosis, clotting disorders such as reperfusion, CC ocular diseases such as glaucoma, retinopathy and macular degeneration, psychiatric and neurological disorders such as anxiety, schizophrenia, CC dementia, manic depression, etc. The polynucleotides are useful in gene therapy techniques to treat the above mentioned disorders. Sequences CC AAB85491-85522 represent the human protein kinases of the invention.

XX Sequence 1618 AA;
```

Ś S 밁 Ś 멍 δ 밁 Ś 밁 δ 문 5 片 5 문 유 Ś 片 8 片 Ś 뮍 S 밁 Ś Matches Query Match Best Local 1309 1211 1178 1126 1097 1249 1043 494 327 983 923 183 152 882 110 768 GSASQASSSQVSSLRVGSSQVGTEPGPSLDAEGWTQEAEDLSDSTPTLQRPQEQATMRKF 165; 66 19 Similarity GLASFRLSGLKSWDRAP-DIGQVSLVQIRDLSGDAEAADTISLDISEVDPAYLNLSDLYDIKYLPFEFMIFRKVPKSA SLGG-GGAARVRVRGSTGVAAAAGLHRYLRDFCG-----CHVAWSGSQLR------AVQELVSLYYEEARSAYLS-KELASLLRAGGVLAYELLPALDEVLASDSRFLLGSWLEQA QGRSAQPLPSTKTFAFQTQ1QRGRFSVVRQCWEKASGRÅLAAK11PYHPKDKTAVLREYE RGHNRSPLVRRPSLQMNTSIWYNR-SDVFEAWRLLLTSAPSLATSPAFRYDLLDLTR--Q WTTLASDIFDCCYLTSKLSRGGTYTFRTACVSKAGMGPYSSPSEQVLLGGPSHLASEEES WRLLLRSVYNC----AESQPVYTRTASFQGQPFIWCMLHNFGGNHGLFGALEAVNGGPEAARLFPNSTMVGTGMA LGQSVTLACQVSAQPAAQATWSKDGAPLE-----SWGHFNCSYSCSFLLAPEDPIFPIIGSLFLRELIKEFGTDHIYGADTFNEMQPPSSEPSY SRSLFHFPG----RHLPLDEPAELGLRERVKASVEHISRILKGRPEGLEKEGPP----RKKP 1096 LPPSWHIKQLYLQHRVLDQMRSFGMTPVLPAFAGHV-----PEAVTRVFPQVNVTKMG **OPEPPSPMAEEELAEFPEPTWPWPGELGPHAGLEITEESEDVDALLAEAAVGRKKKWSSP** SQSEEQQEARAESPLPQVSARPVPEVGRAPTRSSP---SLGGRGGYAGVAGYGTFAFGGDAG---GGAAGDEAREAAAVRALVARL-LGPGPAAD---FSVSVERALAAKPGLD-----TY ALKGLRHPHLAQLHAAYLSPRHLVLILEL--CSGPELLPCLAE-RASYSESEVKDYLWQM PEGISQNEVVYSLMAELGWRKDPVPD-----LAAW--VTSFAARRYGVSHPDAGAA AEDLGVYT--LAAATTAVYEAMTAVDTEAVWLLQGWLFQHQPQFWGPAQIRAVLGAVPRG--RLLVLDLF Conservative -GLTQAEINEF-----FTGP-----REI -- DWMALNGINLAL -- -- AWSGQEAIWQRVYLAL ---3.0%; Score 118.5; D 18.6%; Pred. No. 0.91; ·LP----RPLPAVPGELTEATPNRYRYYQNVCTQSYSFVWWDWARWE 97; CSVSNALGTVTTTGVLR-----KAER--PSSS-----PCPDIGEVYADGVLLVWKPVESYGPVTYIVQCSLEGGS Mismatches ---GMLGQGPMWARIAWAVSQSEEEEQEEARAE DB 307; --SSSRVLISATLKNFQLLTILVVV 22; Indels Length AFLAWGRMGNLHTWDGP 319; ---EPTPWE -SDETVV Gaps SGEAC 1425 625 1308 1248 1177 384 1368 566 493 444 1125 326 266 213 151 1210 509 1042 982 922 827 65 182 881 1.09 40;

```
ARESULT 13
ARE24151
ID ARE24
XX Human
XX Human
XX Human
XX Human
XX Homo
XX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      점
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                           20-OCT 2000; 2000US-242410P.
27-OCT 2000; 2000US-244068P.
03-NOV-2000; 2000US-247578P.
09-NOV-2000; 2000US-247672P.
16-NOV-2000; 2000US-249565P.
22-NOV-2000; 2000US-250807P.
01-DEC-2000; 2000US-250807P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Human; kinase; PKIN; cancer; immune system disorder; atherosclerosis; acquired immune deficiency syndrome; AIDS; Addison's disease; allergy; asthma; multiple sclerosis; psoriasis; arteriosclerosis; cirrhosis; development; hepatitis; cardiovascular; hypertension; drug screening; myocardial infarction; Goodpasture's syndrome; lipid disorder; growth; fatty liver; Gaucher's disease; Niemann-Pick's disease; anorettic; hypercholesterolaemia; obesity; gene therapy; cytostatic; anti-hIV; neuroprotective; hepatotropic; hypotensive; cardiant; nephrotropic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAE24151
New human kinase polypeptide, for diagnosing, preventing and treating cancer, immune system disorders growth and development disorders, cardiovascular disorders and lipid disorders
                                                                                                                                                                                                           Gandhi Lal PG,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           23-SEP-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Domain
                                                                                                     WPI; 2002-454603/48
N-PSDB; AAD38865.
                                                                                                                                                                                                                                                                                        Gururajan R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             20-OCT-2001; 2001WO-US47728
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WO200233099-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   hyperlipidaemia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               626
                                                                                                                                                                                                                                  AR,
                                                                                                                                                                                  Ramkumar J, Di
AR, Lu Y, Yue H
Recipon SA, Lu
elu K, Khan FA,
                                                                                                                                                                                                                                                                                                                                                 INCYTE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    standard; Protein; 1665 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      YLETMAPELLEGOGAVP-----QTDIWAIGVTAFIMLSAEYPVSSEG 1521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LSATQYLHNQHILHLDLRSENMIITEYNLL-----KVVDLGNAQSLSQEKVLPSDKFKD 1479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FLEALVDSVAQG----IPFQQHQFDKNVFQL-EQAFVLSKQRYPSQPRG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RAAA-----VSEAEADFYEQN---SRYQLTLWGPEGNILDYANKQLAGLVANYYTPRWRL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (first
                                                                                                                                                                                                Sudhn MR, Walia NK, Elliott VS, Xu Y, Arvızu (
Rumar J, Ding L, Tang XT, Hafalia AJA, Nguyen DB, 
Rumar J, Ding L, Tang XT, Hafalia AJA, Nguyen DB, 
Rumar J, Yue H, Burford N, Bandman O, Tribouley CM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (PKIN)-22 protein
                                                                                                                                                                                                                                                                                                                                                 GENOMICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Location/Qualifiers 68..128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              165..418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note= "Eukaryotic
1372..1606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 167..401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         enzyme.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         "Protein kinase domain"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               "Immunoglobulin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       "Eukaryotic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    "Protein kinase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        "Immunoglobulin
                                                                                                                                                                                  Borowsky ML,
CH;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            protein kinase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       protein kinase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    domain"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    domain"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             domain"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          domain"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              domain"
                                                                                                                                                                                                                                                                 Arvizu C
| Arvizu C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         721
                                                                                                                                                                                                                 Swarnaker
                                                                                                                                                                                                              ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  677
```

```
Claim 1; Page 182-186; 210pp; English.
                                         The invention
```

CC nucleic acid sequences. PKIN and its DNA are useful for diagnosing, CC treating and preventing cancer, an immune system disorder (e.g., cc acquired immune deficiency syndrome (AIDS), Addison's disease, allergy, CC asthma, atherosclerosis, multiple sclerosis, psoriasis), disorders (c affecting growth and development (e.g., arteriosclerosis, cirrhosis, CC hepatitis), cardiovascular disorder (e.g., hypertension, myocardial CC infarction, Goodpasture's syndrome), and a lipid disorder (e.g., fatty CC liver, Gaucher's disease, Niemann-Pick's disease, hypercholesterolaemia, Obesity), and for assessing the effects of exogenous CC compounds. Anti-PKIN antibody is useful in a diagnostic test for a CC condition or a disease associated with the expression of PKIN in a biological sample. A composition comprising pKIN or an agonist of CC antagonist of PKIN is useful for treating a disease or condition CC associated with decreased or increased expression of functional PKIN. CC pKIN is useful in a number of drug screening techniques and to analyse the proteome of a tissue or cell type. PKIN DNA is useful for creating constitution of the proteome of a tissue or cell type. PKIN DNA is useful for creating constitution of the proteome of a tissue or cell type. PKIN DNA is useful for creating constitution of the proteome of a tissue or cell type. PKIN DNA is useful for creating constitution of the proteome of a tissue or cell type. PKIN DNA is useful for creating constitution of the proteome of a tissue or cell type. PKIN DNA is useful for creating constitution or constitut in somatic or germline gene therapy. The present sequence is relates human kinases (PKIN) and their corresponding

Sequence 1665 Ā

Ś 밁 Ś 밁 8 밁 Ś 밁 Ś 문 Ş 맑 δ 멍 Ś 밁 Š 片 Ś S 밁 Query Match Best Local & hes 165; 1258 1173 1144 1090 1030 327 970 152 445 385 267 214 929 110 875 815 9 19 Similarity LPPSWHIKQLYLQHRVLDQMRSFGMTPVLPAFAGHV-----PEAVTRVFPQVNVTKMG GSASQASSSQVSSLRVGSSQVGTEPGPSLDAEGWTQEAEDLSDSTPTLQRPQEQVTMRKF GGAAGDEAREAAAVRALVARL-LGPGPAAD---FSVSVERALAAKPGLD-----TY GLASFRLSGLKSWDRAP-----TFLREL SWGHFNCSYSCSFLLAPEDPIFPIIGSLFLRELIKEFGTDHIYGADTFNEMQPPSSEPSY SRSLFHFPG---RHLPLDEPAELGLRERVKASVEHISRILKGRPEGLEKEGPP---RKKP QPEPPSPMAEEELAEFPEPTWPWPGELGPHAGLEITEESEDVDALLAEAAVGRKRKWSSP DIGQVSLVQIRDLSGDAEAADTISLDISEVDPAYLNLSDLYDIKYLPFEFMIFRKVPKSA SQSEEQQEARAESPLPQVSARPVPEVGRAPTRSSP-------LP----RPLPAVPGELTEATPURYRYYQUVCTQSYSFVWWDWARWE SLGGRGGYAGVAGYGTFAFGGDAG-----GMLGQGPMWARIAWAVSQSEEEEQEEARAE SLGG-GGAARVRVRGSTGVAAAAGLHRYLRDFCG-----CHVAWSGSQLR--WRLLLRSVYNC--AESQPVYTRTASFQGQPFIWCMLHNFGGNHGLFGALEAVNGGPEAARLFPNSTMVGTGMA PEGISQNEVVYSLMAELGWRKDPVPD-----LAAW--VTSFAARRYGVSHPDAGAA LGQSVTLACQVSAQPAAQATWSKDGAPLE-----SSSRVLISATLKNFQLLTILVVV LAAATTAVYEAMTAVDTEAVWLLQGWLFQHQPQFWGPAQIRAVLGAVPRG--RLLVLDLF -----FTGP-Conservative -REI--DWMALNGINLAL----AWSGQEAIWQRVYLAL---3.0%; Score 118.5; D 18.6%; Pred. No. 0.95; 97; -CSVSNALGTVTTTGVLR--- PCPDIGEVYADGVLLVWKPVESYGPVTYIVQCSLEGGS Mismatches DB 307; 23; Indels ---KAER--PSSS------- AFLAWGRMGNLHTWDGP Length 1665 319; -EPTPWE -SDETVV Gaps SGEAC: 509 1224 1172 1143 1029 1295 493 1257 444 266 1089 213 182 969 151 928 109 874 65 40;

WTTLASDIFDCCYLTSKLSRGGTYTFRTACVSKAGMGPYSSPSEQVLLGGPSHLASEEES

밁 Ś 밁 8 밁 δ 멼

```
RESULT 14
AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAA015
ACC AAAA015
ACC AAA015
ACC AAA015
ACC AAAA015
ACC AAA015
ACC AAAA015
AC
   Query Match
Best Local Similarity
Matches 165; Conserv
                                                                                                                                                                    The invention comprises the amino acid and coding sequences (located on chromosome 1) of a human kinase protein that is related to the myosin light chain kinase subfamily. The human kinase DNA and protein sequences of the invention are useful for identifying agents that modulate the activity of the human kinase protein. Kinase-modulating agents are useful for treating a disease or condition mediated by a human kinase protein. The human kinase protein and sequences can be used to produce transgenic animals which are useful for studying the function of kinase proteins and identifying/evaluating modulators of kinase protein activity. The present amino acid sequence represents the human kinase protein of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               New kinase proteins related to myosin light chain kinase subfamily and encoding polynucleotide, useful for diagnosing, treating disease or condition mediated by the kinase protein and for identifying modulator.
                                                                                                                     Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Claim 1; Fig 2; 96pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Wei M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (PEKE )
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     14-NOV-2000;
17-MAY-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             22-OCT-2001; 2001WO-US32616.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         23-MAY-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WO200240683-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 transgenic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 myosin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Human;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Human myosin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  19-SEP-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAO15372;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAO15372 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2002-500223/53.
DB; AAL43908, AF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene therapy; chromosome 1; kinase protein;
light chain kinase subfamily; kinase protein-mediated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PE CORP NY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ketchum K,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AVQELVSLYYEEARSAYLS-KELASILRAGGVLAYEILPALDEVLASDSRFILGSWLEQA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QGRSAQPLPSTKTFAFQTQ1QRGRFSVVRQCWEKASGRALAAK11PYHPKDKTAVLREYE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RAAA-----VSEAEADFYEQN---SRYQLTLWGPEGNILDYANKQLAGLVANYYTPRWRL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      YLETMAPELLEGOGAVP-----QTDIWAIGVTAFIMLSAEYPVSSEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FLEALVDSVAQG---IPFQQHQFDKNVFQL-EQAFVLSKQRYPSQPRG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LSATQYLHNQHILHLDLRSENMIITEYNLL-----KVVDLGNAQSLSQEKVLPSDKFKD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ALKGLRHPHLAQLHAAYLSPRHLVLILEL--CSGPELLPCLAE-RASYSESEVKDYLWQM 1472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RGHNRSPLVRRPSLOMNTSIWYNR-SDVFEAWRLLLTSAPSLATSPAFRYDLLDLTR--O
                                                                                                                        1665
3.0%;
ilarity 18.6%;
Conservative 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2001US-0858664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2000US-0711134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      light chain kinase subfamily-related kinase protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (first
                                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAL43909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ľ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Francesco
         97;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1665
   Score 118.5; D
Pred. No. 0.95;
7; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                <
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Beasley
                                                               DB 23;
         307;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   멸
         Indels
                                                               Length
         319;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1568
                                                               1665;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         modulators
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    disease;
         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          566
         40;
```

standard;

Protein;

2596

19-MAR-2001 AAB30569; AAB30569

(first

entry)

Signal transduction;

H19G5;

kinase; cardiac disease; angina

pectoris;

A splice variant of a signal transduction polypeptide

```
밁
                         Ś
                                                          片
                                                                                  δ
                                                                                                                   밁
                                                                                                                                            5
                                                                                                                                                                            먉
                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                   5
                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                        1473
 1527
                                                                                                                   1416
                                                                                                                                                                             1356
                                                                                                                                                                                                                                        1296
                                                                                                                                                                                                                                                                                                 1258
                                                                                                                                                                                                                                                                                                                                                           1225
                                                                                                                                                                                                                                                                                                                                                                                                                     1173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1030
                                                                                                                                                 567
                                                                                                                                                                                                          510
                                                                                                                                                                                                                                                                    494
                                                                                                                                                                                                                                                                                                                               445
                                                                                                                                                                                                                                                                                                                                                                                         385
                                                                                                                                                                                                                                                                                                                                                                                                                                                327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            970
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      929
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 875
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          815
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GSASQASSSQVSSLRVGSSQVGTEPGPSLDAEGWTQEAEDLSDSTPTLQRPQEQVTMRKF
YLETMAPELLEGQGAVP---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GLASFRLSGLKSWDRAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SRSLFHFPG---RHLPLDEPAELGLRERVKASVEHISRILKGRPEGLEKEGPP---RKKP 1143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QPEPPSPMAEEELAEFPEPTWPWPGELGPHAGLEITEESEDVDALLAEAAVGRKRKWSSP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DIGQVSLVQIRDLSGDAEAADTISLDISEVDPAYLNLSDLYDIKYLPFEFMIFRKVPKSA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGAAGDEAREAAAVRALVARL-LGPGPAAD---FSVSVERALAAKPGLD-----TY
                            FLEALVDSVAQG----IPFQQHQFDKNVFQL-EQAFVLSKQRYPSQPRG
                                                        LSATQYLHNQHILHLDLRSENMIITEYNLL-----KVVDLGNAQSLSQEKVLPSDKFKD
                                                                                     RAAA-----VSEAEADFYEON---SRYOLTLWGPEGNILDYANKQLAGLVANYYTPRWRL
                                                                                                                                               AVQELVSLYYEEARSAYLS-KELASILRAGGVLAYELLPALDEVLASDSRELLGSWLEQA 625
                                                                                                                                                                             QGRSAQPLPSTKTFAFQTQ1QRGRFSVVRQCWEKASGRALAAK11PYHPKDKTAVLREYE
                                                                                                                                                                                                                                      WITLASDIFDCCYLTSKLSRGGTYTFRTACVSKAGMGPYSSPSEQVLLGGPSHLASEEES
                                                                                                                                                                                                                                                                                                                                                                                         AESQPVYTRTASFQGQPFIWCMLHNFGGNHGLFGALEAVNGGPEAARLFPNSTMVGTGMA
                                                                                                                                                                                                                                                                                                                                                                                                                     LGQSVTLACQVSAQPAAQATWSKDGAPLE------SSSRVLISATLKNFQLLTILVVV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SWGHFNCSYSCSFLLAPEDFIFFIIGSLFLRELIKEFGTDHIYGADTFNEMQPPSSEPSY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LPPSWHIKQLYLQHRVLDQMRSFGMTPVLPAFAGHV----PEAVTRVFPQVNVTKMG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SQSEEQQEARAESPLPQVSARPVPEVGRAPTRSSP---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SIGGRGGYAGVAGYGTFAFGGDAG-----GMLGQGPMWARIAWAVSQSEEEEQEEARAE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SLGG-GGAARVRVRGSTGVAAAAGLHRYLRDFCG-----CHVAWSGSQLR---
                                                                                                                    ALKGIRHPHLAQLHAAYISPRHIVLILEL--CSGPEILPCLAE-RASYSESEVKDYLWOM
                                                                                                                                                                                                          RGHNRSPLVRRPSLQMNTSIWYNR-SDVFEAWRLLLTSAPSLATSPAFRYDLLDLTR--Q
                                                                                                                                                                                                                                                                    WRLLLRSVYNC---
                                                                                                                                                                                                                                                                                                                               PEGISQNEVVYSLMAELGWRKDPVPD-----LAAW--VTSFAARRYGVSHPDAGAA
                                                                                                                                                                                                                                                                                                                                                         AEDLGVYT-----
                                                                                                                                                                                                                                                                                                                                                                                                                                               LAAATTAVYEAMTAVDTEAVWLLQGWLFQHQPQFWGPAQIRAVLGAVPRG--RLLVLDLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -----GLTQAEINEF-----FTGP-----AFLAWGRMGNLHTWDGP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -----REI--DWMALNGINLAL----AWSGQEAIWQRVYLAL---
                                                                                                                                                                                                                                                                                                  -----PCPDIGEVYADGVLLVWKPVESYGPVTYIVQCSLEGGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LP----RPLPAVPGELTEATPNRYRYYQNVCTQSYSFVWWDWARWE
                                                                                                                                                                                                                                                                                                                                                             -CSVSNALGTVTTTGVLR-----KAER--PSSS-----
--QTDIWAIGVTÁFIMLSAEÝPVSSEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -TFLREI
   1568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -EPTPWE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SDETVV
                                                                                                                                                                                                                                                                       SGEAC
                                                                                                                      1472
                                                                                                                                                                               1415
                                                                                                                                                                                                                                         1355
                                                                                                                                                                                                                                                                                                  1295
                                                                                                                                                                                                                                                                                                                                493
                                                                                                                                                                                                                                                                                                                                                             1257
                                                                                                                                                                                                                                                                                                                                                                                                                       1224
                                                                                                                                                                                                                                                                                                                                                                                                                                                   384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1029
                                                                                          677
                                                                                                                                                                                                             566
                                                                                                                                                                                                                                                                       509
                                                                                                                                                                                                                                                                                                                                                                                           444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  928
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1089
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        65
```

```
The present sequence represents a splice variant of human in signal CC transduction polypeptide. The polypeptide is designated H19G5. The protein is capable of regulating signal transduction and exhibits kinase CC protein is capable of regulating signal transduction and exhibits kinase CC polypeptides and polymuclectides are useful for preventing or treating a CC cardiac disease, such as congestive heart failure, dilated congestive cardiac disease, such as congestive heart failure, dilated congestive cardiomyopathy, hypertrophic cardiomyopathy, restrictive cardiomyopathy, CC angina pectoris, myocardial infarction, cardiac arrhythmia, pulmonary, CC arterial or rhenovascular hypertension, arteriosclerosis, atherosclerosis and cardiac tumours in humans. The polypeptide is also useful for CC detecting the expression of a protein capable of regulating signal CC transduction or the expression of a protein capable of acting as a donor CC or acceptor molecule of a phosphate group. The monoclonal antibodies can CC be used as probes for detecting discrete antigen expressed by tissue or CC cell samples, and therefore used in humans for localization and CC monitoring of microbial infection.
                                                                                                                                                                                                                                                                                                                                                                                                             Query Match 3.0%; Score 118.5; DB 22; Best Local Similarity 18.6%; Pred. No. 1.9; Matches 165; Conservative 97; Mismatches 307;
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     congestive heart failure; dilated congestive cardiomyopathy; hypertrophic cardiomyopathy; restrictive cardiomyopathy; hypertension; mitral value disease; aortic value disease; tricuspid value disease; myocardial infarction; cardiac arrhythmia; arteriosclerosis; atherosclerosis; cardiac tumour; microbial infection; splice variant.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Novel h19G5 polypeptides capable of regulating signal transduction and exhibiting kinase activity useful for identifying antibodies to treat cardiac diseases, and additional mediators of signal transduction -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Key
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Claim 1; Page 68-74; 81pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         N-PSDB; AAC62287.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Zeng W,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (SCIO-) SCIOS INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    16-APR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               11-APR-2000; 2000WO-US09488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         26-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WO200063381-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Domain
                                                                                                                                                                                                                                                                                1746
                                                                                                                                           1806
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2001-007013/01.
1860 SQSEEQQEARAESPLPQVSARPVPEVGRAPTRSSP-
                                                                                                                                                                                                      66 SLGG-GGAARVRVRGSTGVAAAAGLHRYLRDFCG-----CHVAWSGSQLR------
                                                                                                                                                                                                                                                                                                                                                  19
                                                                                                                                                                                                                                                                                GSASQASSSQVSSLRVGSSQVGTEPGPSLDAEGWTQEAEDLSDSTPTLQRPQEQATMRKF 1805
                                                                                                                                                                                                                                                                                                                                       GGAAGDEAREAAAVRALVARL-LGPGPAAD----FSVSVERALAAKPGLD------TY 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Stanton L,
                                                                                                                                           SLGGRGGYAGVAGYGTFAFGGDAG-----GMLGQGPMWARIAWAVSQSEEEEQEEARAE 1859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2596 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    99US-0129553.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note= "kinase domain"
2301..2553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note= "guanine nucleotide exchange factor domain"
1094..1351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Location/Qualifiers
325..504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note= "kinase domain"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Kong
                                                                     -LP----RPLPAVPGELTEATPNRYRYYQNVCTQSYSFVWWDWARWE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ξ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 22;
                                                                                                                                                                                                                                                                                                                                                                                                                 Indels 319; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 2596;
       -EPTPWE 1900
                                                                     151
                                                                                                                                                                                                                 109
```

B 8	B 8	ρ γς	B &	B. 8	g Sy	B 8	A A	유 양	Å &	8 8	Db Qy
678 2458	626 2404	567 2347	510 2287	494 2227	445 2189	385 2156	327 2104	267 2075	214 2021	183 1961	152 1901
FLEALVDSVAQGIPFQQHQFDKNVFQL-EQAFVLSKQRYPSQPRG 721 : :	RAAAVSEAEADFYEONSRYQLTLMGPEGNILDYANKQLAGLVANYYTPRWRL 677	AVQELVSLYYEEARSAYLS-KELASLLRAGGVLAYELLPALDEVLASDSRFLLGSWLEQA 625	RGHNRSPLVRRPSLQMNTSIWYNR-SDVFEAWRLLLTSAPSLATSPAFRYDLLDLTRQ 566	WRLLLRSVYNCSGEAC 509	PEGISQNEVVYSLMAELGWRKDPVPDLAAWVTSFAARRYGVSHPDAGAA 493	ABSQEVYTRTASFQGQPFIWCMLHNFGGNHGLFGALBAVNGGPBAARLFPNSTMVGTGMA 444	LAAATTAVYEAMTAVDTEAVWLLQGWLFQHQFQFWGPAQIRAVLGAVPRGRLLVLDLF 384	SWGHFNCSYSCSFLLAPEDPIPPIIGSLFLRELIKEFGTDHIYGADTFNEMQPPSSEPSY 326	LPPSWHIKQLYLQHRVLDQMRSFGMTPVLPAFAGHVPEAVTRVFPQVNVTKMG 266	GLTQAEINEFFTGPAFLAWGRMGNLHTWDGP 213	REIDWWALNGINLALAWSGQEAIWQRVYLAL

Search completed: February 13, 2004, 16:15:23
Job time: 60 secs

밁 Ś 밁 Ś B Š

```
Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             protein -
            Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
    103.5
103.5
123.5
123.5
123.5
123.7
117.5
117.5
115.5
115.5
115.5
1109.5
109.5
109.5
109.5
109.5
109.5
109.5
109.5
109.5
109.5
109.5
109.5
109.5
109.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PIR 76:*
1: pir1:*
2: pir2:*
3: pir3:*
4: pir4:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-09-836-613-2
3939
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   February 13, 2004, 15:44:39 ; Search time 29 Seconds (without alignments) 2463.908 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           283308 seqs, 96168682 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 MEAVAVAAAVGVLLLAGAGG......VDLAKKIFLKYYPGWVAGSW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100.0
26.9
3.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GenCore version 5.1.6
Copyright (a) 1993 - 2004 Compugen Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length DB
        3434
3434
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12374
12
        C87270
C87270
G87270
G872738
S183343
S183343
S183343
S183343
S183343
S183343
C87485
T32293
C87485
T31293
C87485
T31293
T178557
T177641
C661159
E865145
T147641
C661159
C7777
T35547
T177663
T17867
T17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SUMMARIES
probable debrisoque probable non-ribos delta-(L-alpha-ami debrisoquine 4-hyd hypothetical prote probable secreted [ComEC/Rec2 family aldehyde dehydroge hypothetical prote conserved hypothetical prote rhsh protein precu probable Pro-X car glutathione S-cont hypothetical prote oligopeptide trans hypothetical protein precu probable Pro-X car glutathione S-cont protein precu probable Pro-X car glutathione S-cont protein pr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           alpha-N-acetylgluc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Description
```

Ş	Db Qy	B 8	gb Qy	₿ 8	B &	B &	Query Ma Best Loo Matches	A;Cross-refer C;Genetics: A;Gene: GDB:N A;Cross-refer A;Nap positio A;Note: defic C;Superfamily C;Keywords: 9	A; Access A; Status A; Status A; Resids	R;Weber, submitte	RESULT 1 G02270 alpha-N-acet C;Species: H C;Date: 03-D		0.00.00.00.00.00.00.00.00.00.00.00.00.0
361 WGF	301 KEF 301 KEF	241 VLP 241 VLP	181 ALG	121 LTEA 121 LTEA	61 GLD 61 GLD	1 MEA 1 MEA	atch cal Simi 743;	Cross-references: ,Gene: LDB: NAGLU ,Gene: GDB: NAGLU ,Cross-references: ,Map position: 17q ,Note: deficient i; ,Superfamily: huma ,Keywords: glycosi	sion: G02270 s: preliminary; s: preliminary; see: 1-743 < WEB	B.; Scott, H	Lacetylgluco ss: Homo sap 03-Dec-1999		102.5 102.5 102.5 102.5 101.5 101.5 101.5 101.5 101.5
AQIRAVLG	FGTDHIYGAD FGTDHIYGAD	AFAGHVP AFAGHVP	.Gltqabinbff .Gltqabinbff	TPNR TPNR	DESDISALIO	VAVAAAVG VAVAAAVG	larity Conserva	GDB: GDB: 21 n San n alpi dase;	270 inary; ti mRNA	במי	nin seq		
AVPRGRLL	TFNEMQE	AVTRVFP AVTRVFP	FFTGP	YRYYONVCTOS YRYYONVCTOS	GLDTYSLGGGGAARVRVRGS 	YVLLLAGAG YVLLLAGAG	100.0%; 100.0%; trive	a a	ranslated	pwood, Librar	6 E		775476018663343600 7754760186336300 8669436500 8669436500 867086943600 867086943600 867086943600
WGPAQIRAVLGAVPRGRLLVLDLFAESQPVYTRTASFQCQPFIWCMLHNFGGNEGLFGAL	PSSEPSYLAAATTAVYE 	VNVTKMGSWGHFNCSYS	PAFLAWGRMGNLHTWDGPLPPI 	YSFVWWDWARWERE SFVWWDWARWERE	TGVAAAAGLHRYLRI TGVAAAAGLHRYLRI	VAVAAAVGVLLLAGAGGAAGDEAREAAAVRALVARLLG	Score 3939; DB Pred. No. 5e-27 0; Mismatches	D:g1197839; ndrome flucosaminid	l from GB/EMBL/DDBJ	J.J. Y, November 1995	C 3.2.1.50) - human vision 03-Dec-1999	ALIGNMENTS	BT0963 BT01369 BB7507 T135884 T135884 AD3111 F196175 D71517 D71517 F17464 BB2580 BB2580 T17467 F13468 BB2580 F13468 F13468 F13468 F1467 F1467 F1467 F1468 F1
FQGQPFIWCN	EAMTAVDTEAVW EAMTAVDTEAVW	CSFLLAPEDP	SWHIKQLYLQHRVLD 	IDWMALNGINLALAWSGQEA	DFCGCHVAWSGSQ DFCGCHVAWSGSQ	VARLLGPGPAAD VARLLGPGPAAD	1; Length	PID:g1197840 ase	C ₁		#text_		
MLHNFGGNHGLFGAL	WILQGWLFQHQFQF 	PIFPIIGSLFLRELI	YLQHRVLDQMRSFGMTP YLQHRVLDQMRSFGMTP	INLALAWSGQEAIWQRVYL 	SQLRLPRPLPAVPGE SQLRLPRPLPAVPGE	ADFSVSVERALAAKP 	th 743; ls 0; Gaps				_change		hypothetical prote ABC transporter At conserved hypothet tagatose 6-phospha syringomycin synth myo-inositol catab myo-inositol catab hypothetical prote toxin-like outer m rifamycin polyketi yegH protein precu alanyl dipeptidyl rifamycin polyketi polyketide synthas rifamycin polyketi polyketide synthas rifamycin polyketi catalase (hydroper

밁

밁 S

Ś В 3

밁

8 밁 Ş 뫄 S

В

```
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-770 <STO>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     R;Nierman, W.C.; Feldblyum, T.V.; Paulsen, I.T.; Nelson, K.E.; Eisen, J.; Heidelberg, J. B.; Laub, M.T.; DeBoy, R.T.; Dodson, R.J.; Durkin, A.S.; Gwinn, M.L.; Haft, D.H.; Kolor D. J.; Ermolaeva, White, O.; Salzberg, S.L.; Shapiro, L.; Venter, J.C.; Fraser, C.M. Proc. Natl. Acad. Sci. U.S.A. 98, 4136-4141, 2001
A;Title: Complete Genome Sequence of Caulobacter crescentus.
A;Reference number: A87249; MUID:21173698; PMID:11259647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  alpha-N-acetylglucosaminidase [imported] - Caulobacter crescentus C;Species: Caulobacter crescentus C;Decies: Caulobacter crescentus C;Date: 20-Apr-2001 #sequence_revision 20-Apr-2001 #text_change 10-May-2001 C;Accession: C87316
                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                    맑
                                                                                                                                                                                                                                                                                                                                     5
                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                 В
                                                                                                      Ś
                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A;Cross-references: GB:AE005673; NID:g13421729;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Accession: C87316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ;Superfamily:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gene: CC0540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Genetics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               361
                                                                                                                                                                    178
                                                                                                                                                                                                                                                                                       119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                721
                                                                                                            240
                                                                                                                                                                                                                                                                                                                                                                                                   60
                                                                                                                                                                                                                                                                                                                                                                                                                                                              62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   26.9%; Score 1060.5; DB 2; al Similarity 33.0%; Pred. No. 1.2e-68; 260; Conservative 132; Mismatches 302;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RRYGVSHPDAGAAWRLLLRSVYNCSGEACRGHNRSPLVRRPSLQMVTSIWYNRSDVFEAW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QAISLAAAAFVASPALAAGSTDG----VAAARASLKRLFGRRLAG-----AHLTVTPG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RLLLTSAPSLATSPAFRYDLLDLTRQAVQBLVSLYYEEARSAYLSKELASLLRAGGVLAY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EAVNGGPEAARLFPNSTMVGTGMAPEGISQNEVVYSLMAELGWRKDPVPDLAAWVTSFAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EAVNGGPEAARLFPNSTMVGTGMAPEGISQNEVVYSLMAELGWRKDPVPDLAAWVTSFAA
                                                                                                                                                                       REFGLSEAELADYFSGPAFTPWHRMGNIEGYKAPLPTAWIDKKKDLQVKILGRMRSLGMI
                                                                                                                                                                                                                                                                                                                                                                                                                                                           LDT--YSLGGGGAARVRVRGSTGVAAAAGLHRYLRDFCGCHVAWSGSQLRLPRPLPAVPG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EAVAVAAAVGVIIILAGAGGAAGDEAREAAAVRALVARILGPGPAADFSVSVERALAAKPG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RRYGVSHPDAGAAWRLLLRSVYNCSGEACRGHNRSPLVRRPSLQMNTSIWYNRSDVFEAW
                                                                                                                                                                                                                      LALGITQABINEFFTGPAFLAWGRMGNIHTWDGPLPPSWHIKQIYIQHRVLDQMRSFGMT
                                                                                                                                                                                                                                                                                       ARVE-TPFRHRAYLNTCTYGYTTPWWGWGRWTREIDWMAAHGIDMPLAMEGQEYVWRALW 177
                                                                                                                                                                                                                                                                                                                                        ELTEATPHRYRYYONVCTOSYSFVWWDWARWEREIDWWALNGINLALAWSGOEAIWORVY
                                                                                                                                                                                                                                                                                                                                                                                                      AERSWYAIGGKGGA-ISISGDSPVALVRGAYAHLRQAGLAHVSWEGDRVVQAGAVPAGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GDTVDLAKKIFLKYYPGWVAGSW 743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KQLAGLVANYYTPRWRLFLEALVDSVAQGIPFQQHQFDKNVFQLEQAFVLSKQRYPSQPR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KQLAGIVANYYTPRWRLFLEALVDSVAQGIPFQQHQFDKNVFQLEQAFVLSKQRYPSQPR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ELLPALDEVLASDSRFILLGSWLEQARAAAVSEAEADFYEQNSRYQLTLWGPEGNILDYAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ELLPALDEVLASDSRFLLGSWLEQARAAAVSEAEADFYEQNSRYQLTLWGPEGNILDYAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RLLLTSAPSLATSPAFRYDLLDLTRQAVQELVSLYYEEARSAYLSKELASLLRAGGVLAY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WGPAQIRAVLGAVPRGRLLVLDLFAESQPVYTRTASFQGQPFIWCMLHNFGGNHGLFGAL
                                                                                                         PVLPAFAGHVPEAVTRVFPQVNVTKMGSWGHFNCSYSCSFLLAPEDPIFPIIGSLFLREL
                                                    PILPAFGGYVPKAFAEKNPKARIYRMRPWEGFHETY----WLDPADPLFAKIAARFLALY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     human alpha-N-acetylglucosaminidase
-XSGPSY-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PIDN:AAK22527.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              770
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         93;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GSPDB:GN00148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
-EA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                540
328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         59
                                                                                                                                                                    237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    C;Superfamily: human cytochrome P450 CYP2D6; cytochrome P450 homology C;Keywords: chromoprotein; heme; iron; metalloprotein; monooxygenase; F;302-465/Domain: cytochrome P450 homology <P45> F;443/Binding site: heme iron (Cys) (axial ligand) #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       probable debrisoquine 4-hydroxylase (EC 1.14.14.-) cytochrome P450 - C;Species: Macaca fascicularis (crab-eating macaque) C;Date: 10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change 03-MacCastan. Crabase Contraction Co
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                             Ś
                                                                                                                                           밁
                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                           片
                                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Molecule type: mRNA
A; Residues: 1-497 < LAW>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Status: translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Accession: G02938
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             R;Lawton, M.P.; Laddison, K.J.; Speirs, A.A.; Mankowski, submitted to the EMBL Data Library, October 1995
A;Reference number: G12616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          C; Accession: G02938
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A;Gene: CYP2D17
                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                          Local Similarity
les 104; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       294
                               109
                                                                                   438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     724
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                869
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               638
                                                                                                                                           51
                                                                                                                                                                                                                                                              12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VDLAKKI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TEAVWLL-----QGWLFQHQPQFWGPAQIRAVLGAVPRGRLLVLDLFAESQPVYTRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RFLLG-----SWLEQARAAAVSEAEADFYEQNSRYQLTLWGPEGNILDYANKQLAGLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LFVLDLTDATRHLATMKIDDLLQVAVAAYRRGDTA----AGDAARVEI----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VYNCSGEACRGHNRSP----LVRRPSLQMNTSIWY--NRSDVFEAWRLLLTSAPSLATSP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PNVWKNAKAFGGKPWIYGYVHNYGGSNPVYGDLGFYRQDIPAIAANPDAGKL-----AG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AATTAVYEAMTAVDTEAVWLLQGWLFQHQPQFWGPAQIRAVLGAVPRGRLLVLDLFAESQ
                           VLGFGPRSQGVFLARYGPAWREQRRFSVSTLRNLGLGK---KSLEQWVTEEAACLCAAFT 165
                                                                                   MVGTGMAPEGI --
                                                                                                                                                                                                   ASFQGQPFIWCMLHNFGGN-----
                                                                                                                                                                                                                                                           TVAIFLLLVDLMHRRORWAARYPP---GPLPLPGL----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KSFYLPRWSRFLDAL--KAAGTGTFDEVTVTRGGVAWERAWVEAEVAYRREKPADPIGEI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DKLLGVQPDTLATWIDEARAYGDTPADAAAYVANAKAQVTIWGGEGNLNDYASKAWQGLY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AFRYDILDLTRQAVQELVSLYYEEARSAYLSKELASILRAGGVLAYELLPALDEVLASDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AFSTRYWSPRWWKSKAGAYLFFKRPTATVGDFPQHPGDRAKLEAAVKALTALAPTYGQEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FGMFPEGLHNNSIVYEAVYDLAWSEGQASP-ATWLTRYARARYGKTSPALDAALGQLVEA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TGMAPEGISQNEVVYSLMAELGWRKDPVPDLAAWVTSFAARRYGVSHPDAGAAWRLLLRS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         P-VYTRIASFOGOPFIWCMLHNFGGNHGLFGAL-----EAVNGGPEAARLFPNSTWVG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AYGKAIYDSIROTRPDAVWVMQGWLFGADSHFWDPAAISAYLSLVPDDKLMILDIGNDRY
                                                                                                                                           --FKNTPYCFDQLRRRFGNVFSLQLAWTPVVVLNGLAAVREALVTCGEDTADRPPVPINQ 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ANYYTPRWRLFLEALVDSVAQGIPFQQHQFDKNVFQLEQAFVLSKQRY----PSQPRGDT
                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL:U38218; NID:g1022899; PIDN:AAA79722.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     730
                                                                                                                                                                                                                                                                                                                                                                                                   3.1%;
                                                                                                                                                                                                                                                                                                                                                                              47;
                                                                                                                                                                                                                                                                                                                                                                          Score 123.5; D
Pred. No. 0.45;
17; Mismatches
                                                                                   -SQNEVVYSLMAELGWRKDPVPDLAAWVTSFAARRYGVSH
                                                                                                                                                                                                      -----HGLFGALEA-VNGGPEAARL--FPNST 437
                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 1;
                                                                                                                                                                                                                                                                                                                                                                                 140;
                                                                                                                                                                                                                                                                                                                                                                                 Indels 163;
                                                                                                                                                                                                                                                                                                                                                                                                                                     Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 D.C.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Tweedie,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PID:g1022900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         03-Mar-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EALALSI
                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 crab-eating
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           oxidoreductase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 D.J
                                                                                         487
                                                                                                                                                                                                                                                                                                                            394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     697
                                                                                                                                                                                                                                                                    50
```

macaqu

S

S

A, Gene: pA2424 C; Superfamily: acyl carrier protein homology; acetate-CoA ligase homology C; Keywords: carrier protein; phosphopantethaine; phosphoprotein F; 60-53/Domain: acetate-CoA ligase homology cACL1> F; 584-652/Domain: acyl carrier protein homology cACL2> F; 1174-1622/Domain: acyl carrier protein homology cACL3> F; 1232-2689/Domain: acyl carrier protein homology cACL3> F; 2232-2689/Domain: acyl carrier protein homology cACL3> F; 2232-2689/Domain: acyl carrier protein homology cACL3> F; 2706-2773/Domain: acyl carrier protein homology cACL3> F; 2735-4280/Binding site: phosphopantetheine (Ser) (Covalent) #status predicted Query Match P; 1659-2738, 4280/Binding site: phosphopantetheine (Ser) (Covalent) #status predicted Query Match Best Local Similarity 21.4%; pred. No. 14; Matches 178; Conservative 101; Mismatches 318; Indels 236; Gaps 44; Qy 4	RESULT 4 H83343 probable non-ribosomal peptide synthetase PA2424 [imported] - Pseudomonas aeruginosa (st C;Species: Pseudomonas aeruginosa C;Date: 15-Sep-2000 #sequence_revision 15-Sep-2000 #text_change 31-Dec-2000 C;Accession: H83343 R;Stover; C;K; Pham, X;Q; Erwin, A.L.; Mizoguchi, S.D.; Warrener, P.; Hickey, M.J.; Br adman, S.; Yuan, Y.; Brody, L.L.; Coulter, S.N.; Folger, K.R.; Kas, A.; Larbig, K.; Lim, Lory, S.; Olson, M.V. Nature 406, 959-964, 2000 A;Title: Complete genome sequence of Pseudomonas aeruginosa PA01, an opportunistic pathc A;Reference number: A82950; MUID:20437337; PMID:10984043 A;Accession: H83343 A;Status: preliminary A;Molecule type: DNA A;Residues: 1-4342 <sto> A;Cross-references: GB:AE004669; GB:AE004091; NID:g9948460; PIDN:AAG05812.1; GSPDB:GN001 A;Experimental source: strain PA01</sto>	Qy 488 PDAGAAWRLLLRSVYNCSGEACRGHNRSPLVRRPSLQMNTSIWYNRSDVFEAWRLLL 544
S1826B S1826B delta-(L-alpha-aminoadipyl)-L-cysteinyl-D-valine synthetase - Streptomyces lactamdurans C;Species: Streptomyces lactamdurans C;Species: Streptomyces lactamdurans C;Date: 10-Sep-1999 #sequence revision 10-Sep-1999 #text_change 03-Nov-2000 C;Accession: S1826B; S15283; B38171 R;Martin, J.F. Submitted to the EMBL Data Library, January 1991 A;Reference number: S1826B A;Reference number: S1826B A;Residues: 13649 <mar> A;Residues: 13649 <mar> A;Residues: 13649 <mar> A;Residues: 13649 <mar> A;Ccoss-references: EMBL;X57310; NID:g45005; PIDN:CAA40561.1; PID:g45006 A;Ccoss-references: EMBL;X57310; NID:g45005; PIDN:CAA40561.1; PID:g45006 A;Ccoss-references: EMBL;X57310; NID:g45005; PIDN:CAA40561.1; PID:g45006 A;Ccossion: S18263; MAID:g2065808; PMID:g56290 A;Accession: S15283; MUID:g2065808; PMID:g56290 A;Accession: S15283; MUID:g2065808; PMID:g56290 A;Accession: S15283; MUID:g2065808; PMID:g56290 A;Ccoss-references: EMBL;X57310 A;Coss-references: EMBL;X57310 A;Coss-reference number: Against as Nocardia lactamdurans A;Reference number: Against as Nocardia lactamdurans</mar></mar></mar></mar>	OY 471 LAAWVTSFAARRYG	Qy 206 NLHTWDGPLPPSWHIKQLYLQHRVLDQWRSFGMTPVLPAFAGHVPEAVTRVFPQVNVTKM 265 Db 1389 RLFSGGEALPAELRNRVLQRLPAVALHNRYGPTETAINVT 1428 Qy 266 GSWGHFNCSYSCSFLLAPEDPIFPIIGSLFLREEIIKEFGTDHIYGADTFNEM 317 Db 1429HWQCRAEDGERSPIGRPLGNVVCRVLDAEFNLLPAGVAGEDCIGG 1473 Qy 318QPPSSEPSYLAAATTAVYEAMTAVDTEAVWLLQGWLFQHQPOFWG- 362 Db 1474 LGLARGYLGRPALSAERFVADPFSAAGBRLYRTGDRARWNADGVLEYLGRLDQQVKLRGF 1533 Qy 363PAQIRAVLGAVPRGRLLVLDLFAESQPVYTRTASFQGQPFIWCMLHNFGGNH 414 Db 1534 RIEPEEIQARLLAQPGVAQAVVVIREGVAGSQLVGYYTGAVGAEAEBEQNQ 1584 Qy 415 GLFGALEAVNGGPEAARLFPNSTMVGTGMAPEGISQNEVVYSLMAELGWRKDPVPD 470

```
A;Cross-references: GB:S57006
C;Genetics:
A;Gene: pcobaB
C;Genetics:
C;Genetics:
A;Gene: pcobaB
C;Superfamily: alpha-aminoadipyl-cysteinyl-valine synthetase; acetate-CoA ligase homolog
C;Superfamily: alpha-aminoadipyl-cysteinyl-valine synthesis; phosphopantetheine; phosphoprotein
F;298-758/Domain: acetate-CoA ligase homology <ACL1>
F;786-856/Domain: acyl carrier protein homology <ACL2>
F;1392-1894/Domain: acetate-CoA ligase homology <ACL2>
F;1392-1894/Domain: acyl carrier protein homology <ACL3>
F;2912-2980/Domain: acyl carrier protein homology <ACL3>
F;2912-2980/Domain: acyl carrier protein homology <ACCP3>
F;2912-2980/Domain: acyl carrier protein homology <ACCP3>
F;2912-2980/Domain: acyl carrier protein homology <ACCP3>
   멂
                                                                                                         Ş
                                                                                                                                                밁
                                                                                                                                                                                S
                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                   뮍
                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                 Ś
                                                                           B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2071
                                                                                                                                                    2530
                                                                                                                                                                                                                            2491
                                                                                                                                                                                                                                                                                                   2431
                                                                                                                                                                                                                                                                                                                                                                           2389
                                                                                                                                                                                                                                                                                                                                                                                                                                                    2334
                                                                                                                                                                                                                                                                                                                                       449
                                                                                                                                                                                                                                                                                                                                                                                                                392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RYYONVCTQSYSFVWWDWARWEREI------DWMALNGINLALAWSGQEAIWQRVY
   PAFYELANRE--GL
                                                                                                                                                                                                                            FMLSDTGAKLVL--
                                                                                                                                                                                                                                                                                                   NERANRLAHHLRSVAEPRADELIALVLDKSELTLVAILAVWKAGAAYMPIDPSYPDDRIA
                                                                                                                                                                                                                                                                                                                                                                                                                TRTASFQGQPFIWCMLHNFGGNHGLFGALEAVNGGPEAARLFPNSTMVGTG---MAPEGI 448
                                                                                                                                                                                                                                                                                                                                                                                                                                                    GNLTYAASLFDDTSASGFIATFKHV-----LAEFASAAAQTPIAQLTALDEPGQAALPDA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LQLNFTLQNV----SDH---TSALTGYQPDS-----GGWTTTKFD-LSATMTETATGLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ALRELARTARVSLYSVLLGAWCLMLNMYTGQHDDVVGTPSANRGRPEFDRAVGFFANLLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EIYLSVVVHHSCFDGWSWDIFRRELAALLDGVPEADLGALRGT-----YGEFAVWQRQY
                                                                                                               DEVLASDSRFLLGSWLEQARAAAVSEAEADFYEQNSRYQLTLWGPEGNIL--
                                                                                                                                                                                      APSLATSPAFRYDLLDLTRQAVQELVSLYYEEARSAYLSKELASILRAGGVLAYELLPAL
                                                                                                                                                                                                                                                                                                                                       SQ--NEVVYSLMAELGWRKDP----
                                                                                                                                                                                                                                                                                                                                                                             TRRARRPGGP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IGSLFLRELIKEFGTDHIYGADTFNEMQPPSSEPSYLAAATTAVYEAMTAVDTEAVWLLQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LALGLTQAEINEFFTGPAFLAWGRMGNLHT----WDGPLPPSWHIK----QLYLQHRVLD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGAARVRVRGSTGVAAAAGLHRYLRDFCGCHVAWSGSQLRLPRPLPAVPGELTEATPNRY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AALPGALGTLVRRHPALRTLLKTDDQGVRRQYPIPADDVRLEVP--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGAGGAAGDEAREAAAVRALV-----ARLLGPGPAADFSVSVERALAAKPGLDTYSLGG
                                                                           DSFRAQLSGRYFGSPDESAEAVLFL---ANYVFDFSVEQLALSVLGGHKLLVPPPSAADD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----PVLPAFAGHVPEAVTRVFPQVNVTKMGSWGHFNCSYSCSFLLAPEDPI-FPI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3.0%;
ilarity 21.1%;
Conservative 6:
                                     -DYANKQLAGIVANYYTPRWRLFLEALVDSVAQGIPFQQHQFD 698
                                                                                                                                                                                                                                                             ---RLLLRSVYNCSGEACRGHNRSPLVRRPSLQMNTSIWYNRSDVFEAWRLLLTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -STTVDSRAELDEVLTE----RAGYVFRLHEELPI----RAEAFDHGD
                                                                                                                                                    ----VTETTSTELAYAIY---TSGTTGKPKAVLVSHGSV-----
                                                                                                                                                                                                                          ----AGEAHGSRVRG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       63;
                                                                                                                                                                                                                                                                                                                                                                           -GRCTRLF------EEVAATWPDRVAVVHGDVRLTYREL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 119; D. Pred. No. 16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      --GALGGFETIALPLDHPRPPRFDYRGRELEFELDERTTE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FOHOPOFWGPAQIRAVLGAVPRGRLLVLDLFAESQ-PVY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches 283;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 1; Length 3649;
   SYLSGTPTQVERFD 2650
                                                                                                                                                                                                                                                                                                                                     VPDLAAWVTSFAARRYGVSHPDAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -GELPFEQLVKELKVEKDPSRHPI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                            -LTSGDVLDLEQLDLTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       306;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                        909
                                                                                                                                                                                                                                                                                                                                         493
                                                                                                                                                                                                                                                                                                                                                                                                                                                    2388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   179
                                                                                                                                                                                                                          2529
                                                                                                                                                                                                                                                               546
                                                                                                                                                                                                                                                                                                   2490
                                                                                                                                                                                                                                                                                                                                                                           2430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      69
                                                                                                                 656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       37;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Molecule type: mRNA
A; Residues: 1-497 <GON>
A; Cross-references: EMBI
á
                                     당
                                                                         Ś
                                                                                                               밁
                                                                                                                                              5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                R;Gonzalez, F.J.; Vilbois,
Genomics 2, 174-179, 1988
                                                                                                                                                                                                                                                                                                                                                                                              A;Gene: GDB:CYP2D6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A;Accession: A30335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A;Residues:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Molecule type: mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A;Accession: JC4156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Molecule type: mRNA
A; Residues: 1-497 < GON2>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A;Accession: A28883
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Status: translation not shown
                                                                                                                                                                                        Matches
                                                                                                                                                                                                          Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Status: preliminary
   440
                                                                           397
                                                                                                                 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1-497 <JIA>
                                                                                                                                                                                        l Similarity
97; Conserv
 GTGMAPEGI-
                                                                                                                                                                                        Conservative
                                                                                                                                                                                                        3.0%;
```

Į

```
debrisoquine 4-hydroxylase (EC 1.14.14.-) cytochrome P450 2D6 - human N;Alternate names: CYPDD6; cytochrome P450 isozyme 2D; cytochrome P450db1 C;Species: Homo sapiens (man)
C;Date: 31-Mar-1992 #sequence revision 31-Mar-1992 #text_change 03-Mar-2000 C;Accession: S01199; A28883; JC4156; A33629; A30335 R;Gonzalez, F.U.; Skoda, R.C.; Kimura, S.; Umeno, M.; Zanger, U.M.; Nebert, Nature 331, 442-446, 1988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Cross-references: GDB:132127; OMIM:124030
A;Map position: 22q13.1-22q13.1
A;Introns: 60/3; 118/1; 169/1; 222/3; 281/3; 329/1; 391/3; 439/1
A;Introns: 60/3; 118/1; 169/1; 222/3; 281/3; 329/1; 391/3; 439/1
C;Superfamily: human cytochrome P450 CYP2D6; cytochrome P450 homology
C;Keywords: chromoprotein; electron transfer; endoplasmic reticulum; i
F;302-465/Domain: cytochrome P450 homology <CYP>
F;443/Binding site: heme iron (Cys) (axial ligand) #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        R;Kimura, S.; Umeno, M.; Skoda, R.C.; Meyer, U.A.; Gonzalez, F.J. Am. J. Hum. Genet. 45, 889-904, 1989 A;Title: The human debrisoquine 4-hydroxylase (CYP2D) locus: sequence A;Reference number: A33629; MUID:90072069; PMID:2574001 A;Accession: A33629;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A;Cross-references: EMBL:M20403; NID:gl81349; PIDN:AAA52153.1; R;Jiang, Q.; Voigt, J.M.; Colby, H.D.
Biochem. Biophys. Res. Commun. 209, 1149-1156, 1995
A;Title: Molecular cloning and sequencing of a guinea pig cytocaptone and sequence processing of the processing proces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Molecule type: mRNA
A;Residues: 125-373,'V',375-485,'T',487-497 <MAN>
A;Cross_references: EMBL:M24499; NID:g522194; PIDN:AAA36403.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A;Cross-references: EMBL:M33388; NID:g181303; PIDN:AAA53500.1; PID:g181304 R;Manns, M.P.; Johnson, E.F.; Griffin, K.J.; Tan, E.M.; Sullivan, K.F. J. Clin. Invest. 83, 1066-1072, 1989 A;Title: Major antigen of liver kidney microsomal autoantibodies in idiopathic A;Reference number: A30335; MUID:89155788; PMID:2466049
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A;Title: Characterization of the common genetic defect in humans A;Reference number: S01199; MUID:88122614; PMID:3123997 A;Accession: S01199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Molecule type: DNA
A;Residues: 1-373,'V',375-497 <KIM>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Title: Human debrisoquine 4-hydroxylase
A; Reference number: A28883; MUID:88314109;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Cross-references: EMBL:X08006; NID:g30450; PIDN:CAA30807.1; Gonzalez, F.J.; Vilbois, F.; Hardwick, J.P.; McBride, O.W.;
                                                                                                                                                                                                                                                                                  FQGQPFIWCMLHNFGGN-----
                                                                                                                                                                                                                                                                                                                                                                                        AIFLLLVDLMHRRORWAARYPP---GPLPLPGL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AVWLL------QGWLFQHQPQFWGPAQIRAVLGAVPRGRLLVLDLFAESQPVYTRTAS
                                                                                                                                                               FONTPYCFDQLRRRFGDVFSLQLAWTPVVVLNGLAAVRÉALVTHGEDTADRPPVPITQIL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      53,
-SQNEVVYSLMAELGWRKDPVPDLAAWVTSFAARRYGVSHPD 489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 117.5; I
Pred. No. 1.2;
53; Mismatches
                                                                                                                                                                                                                                                                            ----HGLFGALEA-VNGGPEAARL--FPNSTMV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (P450IID1): cDNA
PMID:3410476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 1;
                                                                                                                                                                                                                                                                                                                                                                                              ----GNLLHVD-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            144;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cytochrome P4502D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   497;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PID:g30451
Nebert, D.W.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            153;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PID:g181350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PID:g522195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 deduced amino
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           deficient
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      heme;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           and identificatio
                                                                                                                                                                           110
                                                                                                                                                                                                                                                                                                                                                                                              Q
Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      iron; metall
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           in debrisoqu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            D.W.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gelboin,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (CYP2D16)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          autoimmu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 seque
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gelbo
```

RESULT 7 PRESULT 7 PRESULT 7 PROPRIES : Aeropyrum pernix (strain K1) hypotherical protein AFE1213 - Aeropyrum pernix (strain K1) c)Species: Aeropyrum pernix c)Aeropyrum per	Db 111 GFGPRSQGVFLARYGPAWREQRRFSVSTLRNLGLGKKSLEQWVTEEAA 158 490 AGAAWRLLLRSVYNCSGEACRGHNRSPLVRRPSLQMNTSIWYNRSDVFEAWRLLLTSAPS 549 159
2y 598 L-AYELLANDEWLADSERSLLOSHES	888 ESGYYTMYNAASIDPSMLPQGPVEVSLTLPYEVFDRQGRERTSTW 362 GPAQIRAVLGAVPRGRILLVLDLFAESQPVYTRTASFQGQPFIWCMLHNF 363 WEGYYYGVLALLYWADLDGDGLGDDGEFYILSIDXXSSNVFRVF 411 GGNHGLFGALEAVNGGPEAARLFPNSTMVGTGMAPEGISQNEVVYSLMAELGWRXDF 977LSNAQEALAGAREALGWS-EGVREEVVLRLALAGLSWAGGTTRA 468 VPDLAAWYTSFAARRYGVSHPDAGAAWRLLLXSVYNCSGEAC

gun

```
C;Accession: C87485

R;Nierman, W.C.; Feldblyum, T.V.; Paulsen, I.T.; Nelson, K.E.; Eisen, J.; Heidelberg, J.
B.; Laub, M.T.; DeBoy, R.T.; Dodson, R.J.; Durkin, A.S.; Gwinn, M.L.; Haft, D.H.; Kolon
n, J.; Ermolaeva, M.; White, O.; Salzberg, S.L.; Shapiro, L.; Venter, J.C.; Fraser, C.M.
Proc. Natl. Acad. Sci. U.S.A. 98, 4136-414, 2001
A;Title: Complete Genome Sequence of Caulobacter crescentus.
A;Reference number: A87249; MUID:21173698; PMID:11259647
A;Accession: C87485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 9
C87485
ComEC/Rec2 family protein [imported] -
C;Species: Caulobacter crescentus
C;Species: Tannon tavision
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           멍
                                                                                                                                                                                                                                                   A; Molecule type: DNA
A; Residues: 1-725 < STO>
A; Cross-references: Cn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
밁
                               Š
                                                                    맑
                                                                                                     Ş
                                                                                                                                                                                                                                                                                                            A; Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Date: 20-Apr-2001 #sequence_revision 20-Apr-2001 #text_change 20-Apr-2001 Accession: C87485
                                                                                                                                                                                                                                                     Cross-references: GB:AE005673; NID:gl3423355; PIDN:AAK23879.1; GSPDB:GN00148;
                                                                                                                                              Matches
                                                                                                                                                               Query Match
Best Local
                                                                                                                                                                                                                      CC1904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   490 DVDNTYGYGNSPGKCEAGPSDTGPSYINTFQRGAQESVWETVPQPTCDAFKYGGKNGYLD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          778
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 553
                                                                      54
                                                                                                           ᆫ
                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ---DTFN----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EYP---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VFPQVNVTKMGSWGHFNCSYSCSFLLAPEDPIFPIIGSLFLRELIKEFGTDHIYGA----
APVMDGERIVRRVDGFVVDVVSPGAGGQRLLIAPVRVSG----LSPEDTPRRIRVTIGEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SPAFRYDLLDLTRQAVQELVSLYYEE------ARSAYLSKELASLLRAGGVLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NPLAAYALSTDADLKPKSATGQSDWAKSLDRQVEFYRWLQSDEGAIAGGATNSWAGRYAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ASFQGQPFIWCMLHNFGGNHGLFGALEAVNGGPEAARLFPNSTMVGTGMAPEGISQNEVV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DALGIAVPETRADYNRF---DDGIYVPSGWSGTMPNGDTVDASSTFASIRSFYQDDPAW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SSPGANGDLHVEVADYTND--VGVAAAYAKTLTYYADRSGDTEAASTAKALLDGMWENNO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ---GPEGN----ILDYANKQLAGLVA-----NYYTPR-----WRLFLEALVDSV----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           YELLPALDEVLASDSRFLLGSWLEQARAAAVSEAEADFYEQNSRYQLTL------W--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  YSLMAELGWRKDPVPDLAAWVTSFAARRYGVSHPDAGAAWRLLLRSVYNCSGEACRGHNR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAKMGDYLRYAMFDKYFKKVG-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LFTGDASYAKQWKFTNAPD----ADARAVQAA-----YWADIWAGEQGKSDEISATLDK
                                                                                                         MEAVAVAAAVGVILILAGAGGAAGDEAR--EAAAVRALVARLIGPGPAADFSVSVERALAA
                                                                        LEVRVEPALWGLTLLAGVIGLAAWGARRWNAPPLLVVLLGLIAFGAAGAWAAKVRSERVA 113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -AQGIPFQQHQFDKNVFQLEQAFVLSKQRYPSQPRGDTVDLAK-----KIFLKYYPGW
                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -DAGAKAVLDKWVDWÁLSETTVNPDGTF----RIPSTLQWSGQPDTWNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ----RPSLOMNTSIWYNRSD-VFEAWRLLLTS----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -WLFQHQPQFWGPAQIRAVLGAVPRGRLLVLDLFAESQ-----PVYTRT
                                                                                                                                                             2.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              --GTPTFYGMYYDEKPVYHDPPSNOWFGFQAWSMERVAEYYQQSG---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               --LLSWYYAWG----GAVDTSAGWAWRI-----GSSHTHGGYQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMOPPSSEPSYL----AAATTAVYEAMTAVDTEA-----VW
                                                                                                                                              67;
                                   DTYSLGGGG----AARVRVRGSTGVAAAAGLHRYLRDFCGCH
                                                                                                                                                             Score 115;
Pred. No. 3
                                                                                                                                          red. No. 3.2;
Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Caulobacter crescentus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -APLDGTVSVGSDPIAGELKSAYGTDDVYGMHWLQ
                                                                                                                                            234;
                                                                                                                                                                               N
-:
                                                                                                                                                                               Length
                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -NCVGPSACPAGTGKDSSH
                                                                                                                                                214;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APSLAT
                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              935
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    879
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            821
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  671
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         638
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        731
 .169
                                     100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               649
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  777
                                                                                                                                                29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         aldehyde dehydrogenase homolog - Sphingomonas aromaticivorans plasmid pNL1 C;Species: Sphingomonas aromaticivorans (C;Apecies: Sphingomonas aromaticivorans (C;Date: 11-Jan-2000 #sequence_revision 11-Jan-2000 #text_change 04-Mar-2000 (C;Accession: T31293 R;Romine, M.F.; Stillwell, L.C.; Wong, K.K.; Thurston, S.J.; Sisk, E.C.; Sensen, C.W.; submitted to the EMBL Data Library, July 1998 submitted to the EMBL Data Library, July 1998 A;Description: Complete sequence of a 184 kb catabolic plasmid from Sphingomonas aromat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        . 5
                               8
                                                                        밁
                                                                                                       Ś
                                                                                                                                                밁
                                                                                                                                                                                                                                                                                              C;Superfamily: aldehyde dehydrogenase (NAD+); aldehyde dehydrogenase
                                                                                                                                                                                                                                                                                                             A;Genome: plasmid pNL1
A;Note: nahF
                                                                                                                                                                                                                                                                                                                                                                                      A;Residues:
                                                                                                                                                                                                                                                                                                                                                                                                       A,Status: preliminary; translated from GB/EMBL/DDBJ A,Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Reference number: Z20992
A; Accession: T31293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
   밁
                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                      A;Cross-references:
                                                                                                                                                                                                                      Best Local Similarity Matches 112; Conserv
                                                                                                                                                                                                                                                                                                                                                      Genetics:
                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      556
   161
                                                                                                                                                  52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HQPQFW--GPAQIRAVLGAVERGRLLVLDLFAESQPVYTRTASFQGQPF----IWCMLHN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AFLAILFDRRAITLHGLALAALSILLLKPETAGEPGFQMSFAATAALVALAESWPKPVRE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -AAWPWLALRAPGKKIAASAG-----LVSVLGYLIVSGA-----PPPABRAAITASV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GPLPPSWHIKQLYLQHRVLDQMRSFGMTPVLPAFAGHVPEAVTRVFPQVNVTKMGSWGHF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -VAWSGSQLRL----PRPLPAVPGELTEATPNRYRYYQNVCTQSYSF----VWWDWARWE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LSTPWWIQGPQAIATWL-AVSIAASLVAGL-----ATAPFAMQHFNRVAVW-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCSYSCSFLLAPEDPIFPIIGSLFLRELIKEFGTDHIYGADTFNEMQPPSSEPSYLAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GAAMVTGH--EAWISETQTEAMRASGLAHILSISGLHM--AIVGGFVFV-VVRMGV----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ----SIGGVGFÄIGDIGEVTLDOPP-LRLRLVMÄ-VNÄFRWDLÄQRLLARMGPTSGGI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REIDWMALNGINLALAWSGOEAIWORVYLALGLTOAEINEFFTGPAFLAWGRMGNLHTWD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PVRKPGQAIGLRAMLGPPPPPAAPG-
 AMALATG---NAFVLLPSEAAPMIADLL---AKLWKEA-----GVPDGLFNV----
                                     YLAAATTAVYEAMTAVDTEAVWLLQGWLFQHQPQFWGPAQIRAVLGAVPRGRLLVLDLFA 385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LAVALWPRPTPPDAWIAADGATAAVRSGNAAVLLRTDAKRFGAELWARR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TAV-----
                                                                           FLRAAIGVPRRIRGETIPSDT--PGRFSMSLRQPV-----GVVAGITPFNVPLIKGIKQS
                                                                                                                                                                                   QLYLQHRVLDQMRSFGMTPVLPAFAGHVPEAVTRVFPQVNVTKMGS----WGHFNCSYSCS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WRKDPVPDLAAWVTSFAARRYGVSHPDAGA------AWRLLLRSV-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FGGNHGLFGALEAVNGGPEAARLFPNSTMV-----GTGMAPEGISQNEVVYSLMAELG
                                                                                                                                                  QAYLQHRDLPAAVREGWI----AKAAEIMERDTAKFADVLVDEIGSPIAKAGFETRFAVS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WGIDVMLNVA---
                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                    EMBL:AF079317; NID:g3378261; PID:g3378434; PIDN:AAD04017.1
                                                                                                                                                                                                                                         2.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -GLFSEAHGAQHIVASAPPQVLLVAFLGLMVLCLWRGRLRWIGAPLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GLPANLAVSPLSSFVIMPFLAIGTVLEPFGLSA-----PFLAVAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         --YNCSGEACRGHNRSPLVRRPSLOMNTSIWYNR
                                                                                                             PEDPIFPIIGSLFLRELIKEFGTDHIYGADTFNEMQPPSSEPS 325
                                                                                                                                                                                                                          52;
                                                                                                                                                                                                                                         Score 114;
Pred. No. 2
                                                                                                                                                                                                                        mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ----YEAMTAVDTEAVWLLQGW---LFQ
                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                            165;
                                                                                                                                                                                                                                                           N
                                                                                                                                                                                                                                                             Length 479
                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AYDFARDAWFD----
                                                                                                                                                                                                                          152;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             533
                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                    homology
                                                                                                                                                       107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   205
           201
                                                                                 160
```

```
A;Cross-referent
A;Experimental:
C;Genetics:
A;Gene: PA1923
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          C;Species: Pseudomonas aeruginosa
C;Jate: 15-Sep-2000 #Bequence_revis
C;Accession: G83405
R;Stover, C.K.; Pham, X.Q.; Erwin,
adman, S.; Yuan, Y.; Brody, L.L.;
                         Ş
                                                            밁
                                                                                                                   밁
                                                                                                                                                Ş
                                                                                                                                                                              밁
                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ; Lory, S.; Olson, M.V.
Nature 406, 959-964, 2000
A;Title: Complete genome sequence of Pseudomonas aeruginosa PA01,
A;Reference number: A82950; MUID:20437337; PMID:10984043
A;Accession: G83405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              맑
                                                                                   Ś
                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Status: preliminary
A;Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          hypothetical protein PA1923 [imported] - Pseudomonas aeruginosa (strain
                                                                                                                                                                                                                                                                                                                                                                                                                                                 ;Residues: 1-1281 <STO>
;Cross-references: GB:AE004618; GB:AE004091; NID:g9947912; PIDN:AAG05311.1; GSPDB:GN001
;Experimental source: strain PAO1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Species: Pseudomonas aeruginosa
Date: 15-Sep-2000 #sequence_revision 15-Sep-2000 #text_change 31-Dec-2000;
Accession: G83405
                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                          Local
   303
                               592
                                                                                        542
                                                                                                                     206
                                                                                                                                                 488
                                                                                                                                                                               152
                                                                                                                                                                                                            441
                                                                                                                                                                                                                                                                     400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      386
                                                                                                                                                                                                                                        97
                                                                                                                                                                                                                                                                                                   40
                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                          TGMAPEGISQ-----SFAARRYGVSH
                                                                                                                                                                                                                                        GTOPWI----RVGGGPPGFGNLPAALGGRLVGYYANGGEANLRRLFEAVRRWHAGLTVD
                                                                                                                                                                                                                                                                     --QPFIWCMLHNFGGNHGLFGALEA------VNGGP-----EAARLFPNSTMVG
                                                                                                                                                                                                                                                                                                                               LQGWLFQHQPQFWGPAQIRAVLGAVP-----RGRLLVLDLFAESQPVYTRTA---SFQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    T 672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PEGISONEVVYSLMAELGWRKDPVPDLAAWVTSFAARRYGVSHPDAGAAWRLLLRSVYNC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -----YV-----
                                                                                                                     AQTGAIDELLRRS---
                                                                                                                                                                              ALPAPQPLAQAGFYHPDAPAPFAVLADYLAW-----GASRWASDAPRIAFLIPRGAIAD
                                                                                                                                                                                                                                                                                                LAGWAREAGVELRG---LRIGIGEAPPGEWIDGGNILIIDTPRPTDRAQVEEALGERLOG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      н
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SGEACRGHNRSPLVRRPSLQMNTSIWYNRSDVFEAWRLLLTSAPSLATSPAFRYDLLDLT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ESOPVYTRTASFOGOPFIWCMLHNFGGNHGLFGALEAVNGGPEAARL-FPNSTMVGTGMA
LGMPETWGMSDPLVISALENGEPKLMAG--QAEALLDKLDRLLRLRRLPAADKHLALMFW
                                                          DVQALVNLQHLQNGPARRAEFLALD----VPVLQTLGYRDGNEADWLAAASGVAPRTAAAF
                                                                                       --LLLTSAPSLATSPAFRYDLLDLTROAVOELVSLYYEE-----ARSAYLSKELASL
                                                                                                                                                PDAGAAWRLLLRSVYNCSGEACRGHNRSPLVRRPSLQMNTSIWYNRSDVFEAWR-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LGSWLEQARAAAVSE---AEADFYEQNSRYQLTLWGPEGNI---LDYANKQLAGLVANYY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TMLGPIISERQRDRVRRHIDDARS----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     QGQVCMGASR ---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -----ROAVQELVSLYYEEARSAYLSKELASLLRAGGVLAYELLPALDEVLASDSRFL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -EIAARNLKKYTL--ELG-GKSPLVICA-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -GEWSGNSCAATILSGVTAEMTVFEEETFGPVTSLFPFDTLEEALELANNTEYGLSASIF
                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                       2.9%; Score 113; DB 22.5%; Pred. No. 9.8;
                                                                                                                                                                                                                                                                                                                                                          44;
                                                                                                                     ----ERHGOAPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Coulter, S.N.; Folger, K.R.; Kas,
                            --LRAGGVLAYELLPALDEVL----ASDSRFLLGSW 621
                                                                                                                                                                                                                                                                                                                                                            Mismatches 141;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   - IYVERS-IFDQF----TKAFAAATGRANSGDLRDPT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GNGAEIG--DVLTGHPKVASITFTGSSRVGKHIA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -KGAAVLAG
                                                                                                                                                                                                                                                                                                                                                                                       2;
                                                                                                                     ----AVWFDDSDP-EALRKSFAGA
                                                                                                                                                                                                                                                                                                                                                                                        Length 1281;
                                                                                                                                                                                                                                                                                                                                                            Indels 174;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -DADLDKAVNAALFSIFMY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       an opportunistic patho
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ₽.
;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Hickey,
Larbig,
                                                                                                                                                                                                          487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          504
                                                                                                                     245
                                                                                                                                                   541
                                                                                                                                                                                                                                        151
                                                                                                                                                                                                                                                                                                96
                                                                                                                                                                                                                                                                                                                               399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              671
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     444
                                                                                                                                                                                                                                                                                                                                                            26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   M.J.; Br
K.; Lim,
                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                            片
              S
                                            밁
                                                                       Ś
                                                                                                   g
                                                                                                                              Ś
                                                                                                                                                              片
                                                                                                                                                                                       Ś
                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                片
                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Accession: I58158
A; Status: preliminary; translated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           R;Monyer, H.; Burnashev, N.; Laurie,
Neuron 12, 529-540, 1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ;Accession: D45219
                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 12
                                                                                                                                                                                                                                                                                                                                                                                                     Local Similarity es 106; Conserv
               480
                                             283
                                                                                                                                                               176
                                                                        425
                                                                                                      232
                                                                                                                                                                                            319
                                                                                                                                                                                                                                                                                                                 216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     622
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          361
                                                                                                                                                                                                                                                                                   94
                                                                                                                                                                                                                                                                                                                                               48 LNVALVFSGP-----
                                                                                                                                                                                                                                                                                                                 PSWHIKQLYLQ----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -
```

```
A;Molecule type: mRNA
A;Molecule type: mRNA
A;Rossidues: 1-66, 'V', 68-1323 <RE2>
A;Cross-references: GB:L31611; NID:g469066; PIDN:AAC37646.1; PID:g469067
A;Cross-references: GB:L31611; NID:g469066; PIDN:AAC37646.1; PID:g469067
A;Clshii, T.; Moriyoshi, K.; Sugihara, H.; Sakurada, K.; Kadotani, H.; Yokoi,
J. Biol. Chem. 268, 2836-2843, 1993
J. Biol. Chem. 268, 2836-2843, 1993
A;Title: Molecular characterization of the family of the N-methyl-D-aspartate
A;Reference number: A45219; MUID:93155102; PMID:8428958
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A;Experimental source: brain A;Experimental source: brain A;Note: sequence extracted.from NCBI backbone (NCBIP:124265) C;Superfamily: N-methyl-D-aspartate receptor 2D; glutamate rF;451-879/Domain: glutamate receptor homology <GRH>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N-methyl-D-aspartate receptor chain NMDAR2D-2 - rat C;Species: Rattus norregicus (Norway rat) C;Date: 02-Aug-1996 #Bequence revision 02-Aug-1996 #Lext_change 21-Jan-2000 C;Accession: I78557; I58158; D45219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Status: preliminary; not compared with conceptual translation A;Molecule type: nucleic acid A;Residues: 1265-1323 <ISH>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A;Molecule type: mRNA
A;Residues: 1-1323 <RES>
A;Cross-references: GB:L31612; NID:g469068; PIDN:AAC37647.1; PID:g469069
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Title: Developmental and regional expression in the rat brain A; Reference number: I58158; MUID:94206533; PMID:7512349 A; Accession: I78557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ;Status: preliminary; translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          264 KMGSWGHFNCSYSCSFLLAPEDPIFPIIGSLFLRELIKEFGTDHIYGADTFNEMQ-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     162 INLALAWSGQEAIWQRVYLALGLTQAEINEFFTGPAFLAWGRMGNLH-----TWDGPLP
-ARRYGVSHPDAGAAWRLLLRSVYNCSGEACRGHNRSPLVRRPSLQ---MNTSIWYNRSD
                                                                                                                                                                                                                                             QLRSVSAQIRLLFC-AREEAEPVFRAAEEAGLTGPGYVWFMVGPQLAGGGG-----S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AQRLLGG----YYRPQ---TLDALYRDGLAASLPLDAYLHWFE 441
                                                                                                                                                                        GGPEAARLFPNSTMVGTGMAPEGISQNEVVYSLMAELGWRKDPVPDLAAWVTSFA-----
                                                                                                                                                                                                                                                                                                           VPRG-----RLLVLDLFAESOPVY--TRTASFQGQPFIWCML-HNFGGNHGLFGALEAVN
                                                                                                                                                                                                                                                                                                                                                                                 LEEYDWTSFVAVTTRAPGHRAFLSYIEVLTDG--SLVGW--EHRGALTLDPGAGEAVLGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                   -PPSSEPSYLAAATTA----VYEAMTAVDTEAVWLLQGWLFQHQPQF-WGPAQIRAVLGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PS-----LVLQLCDLLSGLRVHGVVFEDDSRAPAVAPILDFLSAQTSLPIVAVHG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ANKQLAGIVANYYTPRWRLFLEALV-DSVAQGIPFQQ--HQFD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NHPEGEKNVAASHLNVPASLARLGEALRAAGYRVATSD-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2.8%; Score 112; DB 2; ilarity 22.9%; Pred. No. 12; Conservative 48; Mismatches 157;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ----HRVL--DOMRSFGMTPVLPAFAGHVPEAVTRVFPQVNVT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -AYAAEAARL-----GPAVAAAVRSPGLDVRPVALVLNGSDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                D.J.; Sakmann, B.; Seeburg,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -EQARAAAVSEAEADFYEQNSRYQLTLWGPEGNILDY
                                                                                                          ----FAVASAGWRDDLARRVAAGVAVVARGAQA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               glutamate receptor homology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 1323;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ---LGSSTEQQLQVIFEV 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     869
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          152;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ESALIDT 405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  functional
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                        535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     263
                                                                                                             330
                                                                                                                                                                               479
                                                                                                                                                                                                                                                 282
                                                                                                                                                                                                                                                                                                                   424
                                                                                                                                                                                                                                                                                                                                                                                     231
                                                                                                                                                                                                                                                                                                                                                                                                                                                      372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   M.; Akazaw
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              properti
```

Qy 402 LSAADVPPALWTQVIALAEGDPLQLTLLATLARDEGQAGLTGKGGATITLYRSLEARLGG 461 Qy 427 PEAARLEPNSTMVGTGMAPEGISQNEVVYSLMAELGW 463 QY 427 PEA-LARLEPNSTMVGTGMAPEGISQNEVVYSLMAELGW 463 QY 462 RHAKLARFIPLFRRENSELLGANWAPVVLGERLSPGAAA-ALWAELKDQTWLIAGETEGW 520 QY 464 RKDPVPDLAAWVTSFAARRYGVSHPDAGAAWRLLLRSVYNCSGEACRGHNRSPLVR 519 521 LTPQPDLRRRLAGKLYDEHARRTGALHRRA-ARWFAE 556 QY 520 RPSLOMNTSTYNRSDVEBAWRLLLTSAPSLTSPAFR-YDLLDLTRQAVQELVSLY 575	Qy 288FPIIG-SLFLRELIKEFGTDHI	Query Match Best Local Similarity 22.5%; Pred. No. 10; Matches 157; Conservative 47; Mismatches 217; Indels 278; Gaps 38; Qy 135 VCTQSYSFVWDWAARWEREIDWMALNGINLALAMSGQEAIW 175	RESULT 13 H87316 hypothetical protein CC0545 [imported] - Caulobacter crescentus C;Species: Caulobacter crescentus C;Species: Caulobacter crescentus C;Date: 20-Apr-2001 #sequence_revision 20-Apr-2001 #text_change 20-Apr-2001 C;Accession: H87316 C;Accession: H87316 R;Nierman, W.C.; Feldblyum, T.V.; Paulsen, I.T.; Nelson, K.E.; Eisen, J.; Heidelberg, J. R;Nierman, W.C.; Feldblyum, T.V.; Dodson, R.J.; Durkin, A.S.; Gwinn, M.L.; Haft, D.H.; Kolon R; Laub, M.T.; DeBoy, R.T.; Dodson, R.J.; Durkin, A.S.; Gwinn, M.L.; Haft, D.H.; Kolon n, J.; Ermolaeva, M.; White, O.; Salzberg, S.L.; Shapiro, L.; Venter, J.C.; Fraser, C.M. Proc. Natl. Acad. Sci. U.S.A. 98, 4136-4141, 2001 A;Title: Complete Genome Sequence of Caulobacter crescentus. A;Reference number: A87249; MUID:21173698; PMID:11259647 A;Accession: H87316 A;Status: preliminary A;Molecule type: DNA A;Residues: 1-1027 <570> A;Coss-references: GB:AE005673; NID:g13421736; PIDN:AAK22532.1; GSPDB:GN00148 C;Genetics: A;Gene: CC0545	Db 331 LLRDYGFL-PELGHDCRTQNRTHRGESLHRYFMNIT-WDNRDY 371 Qy 536 VFEAWRLLLTSAPSLATSPAFRYDLLDLTRQAVQELVSLYYEE 578
RESULT 15 T47641 hypothetical protein T15C9.20 - Arabidopsis thaliana hypothetical protein T15C9.20 - Arabidopsis thaliana C;Species: Arabidopsis thaliana (mouse-ear cress) C;Date: 20-Apr-2000 #sequence_revision 20-Apr-2000 #text_change 20-Apr-2000 C;Accession: T47641 R;Mewes, H.W.; Rudd, S.; Lemcke, K.; Mayer, K.F.X. submitted to the Protein Sequence Database, April 2000 A;Reference number: Z24470 A;Accession: T47641 A;Accession: T47641 A;Accession: T47641 A;Accession: T47641 A;Accession: T47641 A;Accession: T47641 A;Cross-reference DNA A;Residues: 1.884 <men 1.884="" 3<="" <men="" a;cross-references:="" a;map="" a;residues:="" embl:al132970="" position:="" td=""><td>Qy 461</td><td>Query Match 2.8%; Score 109.5; DB 2; Length 285; Best Local Similarity 23.7%; Pred. No. 2.1; Matches 80; Conservative 36; Mismatches 90; Indels 131; Gaps 17; Qy 328 AAATTAVYEAMTAVDTEAVWLLQGWLFQHQPQFWGPAQIRAVLGAPRGRLLVLDLFAES 387 Qy 328 AAPTTAWVAGLTAVSWLATTICAAWF</td><td>RESULT 14 F87285 conserved hypothetical protein CC0295 [imported] - Caulobacter crescentus c;Species: Caulobacter crescentus c;Accession: F87285 R;Nierman, W.C.; Feldblyum, T.V.; Paulsen, I.T.; Nelson, K.E.; Eisen, J.; Heidelberg, C. B.; Laub, M.T.; DeBoy, R.T.; Dodson, R.J.; Durkin, A.S.; Gwinn, M.L.; Haft, D.H.; Kolc n, J.; Ermolaeva, M.; White, O.; Salzberg, S.L.; Shapiro, L.; Venter, J.C.; Fraser, C.N proc. Natl. Acad. Sci. U.S.A. 98, 4136-4141, 2001 A;Telle: Complete Genome Sequence of Caulobacter crescentus. A;Reference number: A87249; MUID:21173698; PMID:11259647 A;Recession: F87285 A;Accession: F87285 A;Recidus: preliminary A;Nolecule type: DNA A;Residus: 1-285 <sto> A;Residus: 1-285 <sto> A;Genetics: A;Genetics: A;Genetics:</sto></sto></td><td>Db 603 -EAARDALLRARGERSYEGRGDALTPSGEVSPAAADELRMLISKGDLAEASH 653 Qy 616 FLLGSWLEQARAAA 629 </td></men>	Qy 461	Query Match 2.8%; Score 109.5; DB 2; Length 285; Best Local Similarity 23.7%; Pred. No. 2.1; Matches 80; Conservative 36; Mismatches 90; Indels 131; Gaps 17; Qy 328 AAATTAVYEAMTAVDTEAVWLLQGWLFQHQPQFWGPAQIRAVLGAPRGRLLVLDLFAES 387 Qy 328 AAPTTAWVAGLTAVSWLATTICAAWF	RESULT 14 F87285 conserved hypothetical protein CC0295 [imported] - Caulobacter crescentus c;Species: Caulobacter crescentus c;Accession: F87285 R;Nierman, W.C.; Feldblyum, T.V.; Paulsen, I.T.; Nelson, K.E.; Eisen, J.; Heidelberg, C. B.; Laub, M.T.; DeBoy, R.T.; Dodson, R.J.; Durkin, A.S.; Gwinn, M.L.; Haft, D.H.; Kolc n, J.; Ermolaeva, M.; White, O.; Salzberg, S.L.; Shapiro, L.; Venter, J.C.; Fraser, C.N proc. Natl. Acad. Sci. U.S.A. 98, 4136-4141, 2001 A;Telle: Complete Genome Sequence of Caulobacter crescentus. A;Reference number: A87249; MUID:21173698; PMID:11259647 A;Recession: F87285 A;Accession: F87285 A;Recidus: preliminary A;Nolecule type: DNA A;Residus: 1-285 <sto> A;Residus: 1-285 <sto> A;Genetics: A;Genetics: A;Genetics:</sto></sto>	Db 603 -EAARDALLRARGERSYEGRGDALTPSGEVSPAAADELRMLISKGDLAEASH 653 Qy 616 FLLGSWLEQARAAA 629

```
A;Introns: 28/2; 51/3; 252/3; 312/3; 350/3; 370/2; 392/3; 410/1; 441/1; 469/1; 604/3; 62
A;Note: T15C9.20
Search completed: February 13, 2004, 16:16:27
Job time : 37 secs
                                                                                                                                                                                                                                                           문
                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 2.8%; Score 109.5; DB 2; Length 814; Best Local Similarity 20.6%; Pred. No. 9.3; Matches 113; Conservative 69; Mismatches 192; Indels 175;
                                                                                                                                                                                                                                                                                                                                                                                                                                                       542
                                                                                                                                                                                                                                                                                                                  574 LYYEEARSAYLSKELASILRAGGVLAYELLPALDEVLASDSREILGSWIEQ--ARAAAYS 631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    490 GŚTFDSŚQLVLTACMGYQNVHEIRLQELRSKHRPAVIAALEERSKGLQAWRDSKGLASKL 549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        446 EGISQNEVVYSLMAELGWRKDPVPDLAAWVTSFAARR-YG---VSHPDAGAAWRL---LL 498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      387 SQPVYTRTASFQGQPFIWCMLHNFGGNHGLFGALEAVNGGPEAARLFPNSTMVGTGMAP- 445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             133 WKEELEVLIRGGVPMAL----RGELWQAF---VGVRKRRCKDYYQ------NLLA 274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              150 WEREIDWMALNGINLALAWSGQEAIWQRVYLALGLTQAEINEFFTGPAFLAWGRMGNLHT 209
                                                                                                                                 656 RILSDKORO 664
                                                                                                                                                                                              632 EAEADFYEQ 640
                                                                                                                                                                                                                                                                                                                                                                                      550 YNFKODPKSVLVDSKASLSNGSLSRSESGSSNADEVLVSLTGDGEVDSVQDLQAQAELCK 609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              499 RSVYNCSG---EACRGHNRSPLVRRPSLQMN----TSIWYNRSDVFEAWR-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  439 ESVLR---VMDVLLFEGTR-----VMLFRTALALMELYGPALVTTKDAGDAVTLLQSLT 489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                350 QAMNFFAALLLLLMPEENAFWALIGLIDDYFNGYYSEEMIESQV-----DQLVLEELVRE 404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    330 ATTAVYEAMTAV----DTEAVWILLOGWIEQHQPQFWGPAQIRAVIGAVPRGRILIVIDLEAE 386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   275 ADGSVNT---IRQEDMQH-VDDXGSSTESIAVVEKWKGQIEKDLPRTFP-------G 320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        321 H------PSVGYC 349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     270 HENCSYSCSELLAPEDPIFPIIGSLFLRELIKEFGTDHIYGADTFNEMQPPSSEPSYLAA 329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   210 WDGPLPPSWHIKQLYLQHRVLDQMRSFGMTPVLPAFAGHVPEAVTRVFPQVNVTKMGSWG 269
                                                                                                                                                                                                                                                                                                                                                                                                                                                ----ELEIALMEIVKEDNRRQLSAKVEQLEQEMAEVQ 655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    541
```

```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Run
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Minimum DB seq
Maximum DB seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
    123.3
123.5
117.5
117.5
1109.5
109.5
109.5
104.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        length: 0
length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 February 13, 2004, 13:34:59; Search time 19 Seconds (without alignments) 1838.992 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query
Match Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BLOSUM62
Gapop 10.0 , Gapext 0.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-836-613-2
3939
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         127863 seqs, 47026705 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SwissProt_41:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GenCore version 5.1.6 Copyright (c) 1993 - 2004 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEAVAVAAAVGVILLAGAGG.....VDLAKKIFLKYYPGWVAGSW 743
    DB
CEDH_MACKA
CEDH_MACKA
ACVS NOCLA
RHSB ECOLI
CATA SALTY
CATA SALTY
CATA SALTY
YMCA ECOLI
OLS STRAT
YMCA SALTI
ENV HV2DI
NNE4 HUMAN
LIFF MOUSE
SIR SYNP7
USA4 SOLTU
LMG3 HUMAN
NUOM RHOCA
MASAS PENPA
USA5 PENPA
ENV HV2DE
VB18 HUMAN
NUOM RHOCA
MASA FENPA
USA5 PENPA
ENV HV2DE
USA7 HUMAN
NUOM RHOCA
MASA FENPA
USA8 PENPA
ENV HV2DE
USA7 HUMAN
NUOM RHOCA
MASA FENPA
USA8 PENPA
ENV HV2DE
USA7 HUMAN
NUOM RHOCA
COTTUT
UGLH HSVBC
CTTA MOUSE
ENBC MYCTUT
UGLH HSVBC
CTTA MOUSE
ENBC MYCTUT
UGLH HSVBC
CTTA MOUSE
ENBC MYCTUT
UTLES DROVI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SUMMARIES
                                                                                                                                                                                                                                                                               003391 mus musculu
01539 homo sapien
P42703 mus musculu
P30008 synechococc
Q43846 solanum tub
O9y6n6 homo sapien
P50974 rhodobacter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    P54802 homo sapien
Q2948 macaca fasc
P27743 nocardia la
P10635 homo sapien
Q52999 rhizobium m
P16916 escherichia
P16917 escherichia
P17750 salmonella
    P22367
P18094
P918094
P253
Q62645
P33144
Q9kdw8
P209231
P209231
P209231
P209231
P209231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    P13029 escherichia
Q63788 rattus norv
P75882 escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Description
                                                                     7 penicillium
4 human immun
3 homo sapien
5 rattus norv
4 emericella
6 bacillus ha
11 herpes simp
8 actinoplane
8 bovine herp
    mus musculu
mycobacteri
drosophila
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        streptomyce
salmonella
                                                                                                                                                                                                                                                                                                                                                                                                                                                    human immun
```

4 5	44	43	42	41	40	39	38	37	36	ა წ	34
94	94.5	94.5	94.5	95	95	95.5	95.5	95.5	96	96	96.5
2.	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
500	966	761	664	636	344	970	914	330	2314	708	856
μ	Н	μ	۳	۳	-	1-1	μ	ا	μ.	۲	μ
CPDG_CAVPO	NASA KLEPN	CTPA_MYCTU	UL47_HSV1F	GIDA_BRUME	LIC1_BURCE	AND1_MOUSE	PERT_RAT	RCEM_ROSDE	PTPZ_HUMAN	NICA_MOUSE	ENV_HV1MN
Q64403 cavia porce	Q06457 klebsiella	Q10876 mycobacteri	P08313 herpes simp	Q8yjs5 brucella me	P22089 burkholderi	P59328 mus musculu	P14650 rattus norv	P26279 roseobacter			

ALIGNMENTS

និន្តន	38	38	5 은	R R	R 3	2 2	RP R	꼽	R R	Ŗ Ķ	2 2	72 P	R	Z 5	g R	RР	2 2	벙	RT	R 3	א ט א י	RN	RF.	77 F	2 Z	RC	2 G	g X	8	9 8	2 2	묘		ijij	P A	RESULT ANAG_H ID A
TESTIS, PROSTRATE, SPLEEN, COLON, LUNG, PLACENTA AND KIDNEY.	acetyl-D-glucosamine residues in N-	s of terminal non-reducing N-	d. Genet. 36:28-31(1999).	<pre>"MucoporySaccharidosis type fill (Sanifilippo b): resuctification of fo novel alpha-N-acetylglucosaminidase gene mutations.";</pre>	COCHECT (-) SHOHOUT BOOK STORY SHOWS (-)	99133861; PubMed=9950362;	VARIANTS MPS-IIIB.	J. Hum. Genet. 62:64-69(1998).	underlyino	Schmidtchen A., Greenberg D., Zhao n.G., Er n.H., Heary I., Itel E., Zhao HZ., Cheng S., Zhao Z., Whitley C.B., di Natale P.,	PubMed=9443878;	VARIANTS MESTILLE HIST92; SEKTILS; CIST140; LIST153; LEGT356; VALTEGE AND ARG-682.		Submitted (AUG-1996) to the EMBL/GenBank/DDBJ databases.	•	ENCE FROM N.A.	[3]	(mucopolysaccharidosis III B).";	ing and expression of the gene involved in Sanfilippo B	, Blanch L., Clements P.R., Scott H.S., Hopwood J.J	MEDITURE GARRON N.A., PARTIAL SEQUENCE, AND CHARACTERIZATION.		. Natl. Acad. Sci. U.S.A. 93:6101-6105(1996).	ilippo syndrome type B.";	INE=96234097; FubMed=8650226;		SEOUENCE FROM N.A.	NCBI_TaxID=9606;	Primates; Catarrhini; Hominidae; Homo.	Craniata;	Cor Official.	saminidase) (NAG).	(kei. 41,	OCT-1996 (Rel. 34, Last	(Rel. 34,	>'= =

```
EMBL; U43573; AACS0512.1; -.
EMBL; U43573; AACS0513.1; -.
EMBL; U40846; AAB06188.1; -.
EMBL; L78464; AAB36604.1; -.
EMBL; L78464; AAB36604.1; -.
PIR; GO2270; GO2270;
Genew; HGNC:7632; NAGLU.
MIM; 252920; -.
GO; GO:0005764; C:lysosome; TAS.
GO; GO:0004561; F:alpha-N-acetylglucosaminidase act
GO; GO:0007399; P:neurogenesis; TAS.
Pfdr01385: Glycosidase. Glycomystain. Mycosolysacoly
                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Signal;
SIGNAL
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DOMAIN
DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     use by non-profit institutions as lon modified and this statement is not remove entities requires a license agreement (Statement is not remove or send an email to license@isb-sib.ch).
                                                                                                                                                     VARIANT
                                                                                                                                                                                                          VARIANT
                                                                                                                                                                                                                                       VARIANT
                                                                                                                                                                                                                                                                                            VARIANT
                                                                                                                                                                                                                                                                                                                       VARIANT
                                                                                                                                                                                                                                                                                                                                                  VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   This SWISS-PROT entry is copyright. It is produced through a collab between the Swiss Institute of Bioinformatics and the EWEL outst the European Bioinformatics Institute. There are no restrictions use by non-profit institutions as long as its content is in modified and this statement is not removed. Usage by and for commodified and this statement is not removed. Usage by isb-sib.ch/an
                                        VARIANT
                                                                                             VARIANT
                                                                                                                          VARIANT
                                                                                                                                                                              VARIANT
                                                                                                                                                                                                                                                                VARIANT
                                                                                                                                                                                                                                                                                                                                                                             VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -
                                                                   VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Hydrolase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DISEASE: DEFECTS IN NAGLU ARE THE CAUSE OF MUCOPOLYSACCHARIDOSIS TYPE IIIB (MPS-IIIB) (ALISO KNOWN AS SAUDEPO B SYNDROME), AN AUTOSOMAL RECESSIVED DISORDER WHOSE CLIMICAL FEATURES ARE SEVERE MENTAL DETERIORATION BUT MILD SOMATIC MANIFESTATIONS IN CHILDHOOD, AND DEATH IN THE SECOND DECADE. BIOCHEMICALLY, THIS DIEBASE IS CHARACTERIZED BY UNDEGRADED OR PARTIALLY DEGRADED HEPARAN SULFATE WHICH ACCUMULATES IN LYSOSOMES AND IS EXCRETED IN URINE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Disease mutation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Glycosidase; Glycoprotein; Mucopolysaccharidosis; sease mutation; Polymorphism.
                                                                                                                                                                                                                                                                142
                                                                                                                                                                                                                                                                                                                                                                                                        5325
5326
5326
79
                                        482
                                                                   452
                                                                                             95E
                                                                                                                        292
                                                                                                                                                     280
                                                                                                                                                                              277
                                                                                                                                                                                                          243
                                                                                                                                                                                                                                     153
                                                                                                                                                                                                                                                                                            140
                                                                                                                                                                                                                                                                                                                       115
                                                                                                                                                                                                                                                                                                                                                  100
                                                                                                                                                                                                                                                                                                                                                                             92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             59
                                                                                                                                                                                                                                    153
                                                                                                                                                                                                                                                                142
                                                                                                                                                                                                                                                                                           140
                                                                                                                                                                                                                                                                                                                                                100
                                                                                                                                                                                                                                                                                                                                                                                                        71
87
261
261
272
435
503
532
79
                                                                 452
                                                                                            358
                                                                                                                        292
                                                                                                                                                     280
                                                                                                                                                                              277
                                                                                                                                                                                                          243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             743
                                        482
                                                                                                                                                                                                                                                                                                                                                                             92
                                                                                                                                                                                                                                                                                                                                                        N-LINKED (GLCNAC...)
N-LINKED (GLCNAC...)
N-LINKED (GLCNAC...)
N-LINKED (GLCNAC...)
N-LINKED (GLCNAC...)
N-LINKED (GLCNAC...)
N-LINKED (GLCNAC...)
N-LINKED (GLCNAC...)
N-LINKED (GLCNAC...)
N-LINKED (GLCNAC...)
Y-INKED (GLCNAC...)
N-LINKED (GLCNAC...)
        /FTId=VAR 008986.
R -> W (IN MPS-IIIB).
/FTId=VAR 008987.
L -> R (IN MPS-IIIB).
                                                                                                                                                                                                                   /FTId=VAR 00:
MISSING (IN N
/FTId=VAR 00:
E -> K (IN M
/FTId=VAR 00:
                                                                 G -> R (IN MPS-II

/FTId=VAR 008985.

P -> L (IN MPS-II

/FTId=VAR 005011.

E -> K (IN MPS-II
                                                                                                                                   /FTId=VAR
L -> P (IN
/FTId=VAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ALPHA-N-ACETYLGLUCOSAMINIDASE 77
FORM.
POLY-GLY.
POLY-ALA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ALPHA-N-ACETYLGLUCOSAMINIDASE 82 FORM.
                                                                                                                                                                                        /FTId=VAR
                                                                                                                                                                                                                                                                                                    /FTId=VAR_008980.
P -> S (IN MPS-IIIB)
/FTId=VAR_005008.
                                                                                                                                                                                                                                                                                        -> C (IN MPS-IIIB).
                                                                                    N ML ... 008985.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                moved. Usage by and for commercial (See http://www.isb-sib.ch/announce/
                                                                                                                                                                  _008983
                                                                                                                                                                                           008982
                                                                                                                                                                                                                                                   008981
                                                                 MPS-IIIB)
                                                                                                                        MPS-IIIB)
                                                                                                                                                                            MPS-IIIB)
                                                                                                                                                                                                          MPS-IIIB)
                                                                                                                                                MPS-IIIB)
                                                                                                                                                                                                                                    MPS-IIIB)
                                                                                                                                                                                                                                                             MPS-IIIB)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          activity;
                                                                                                                                                                                                                                                                                                                                                                                                                                 (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a collaboration
MBL outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              κĎa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         kDa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           n 0n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           way
                                                                                                                                                                                                                                                                       B
                8
                                                    밁
                                                                      8
                                                                                                        g
                                                                                                                              8
                                                                                                                                                              ₽
                                                                                                                                                                                     Ş
                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                  맑
                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity
Matches 743; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CONFLICT
CONFLICT
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VARIANT
                                                                                                                                                                 541
                       721
                                                     661
                                                                               661
                                                                                                           601
                                                                                                                                    601
                                                                                                                                                                                          541
                                                                                                                                                                                                                      481
                                                                                                                                                                                                                                                 481
                                                                                                                                                                                                                                                                             421
                                                                                                                                                                                                                                                                                                        421
                                                                                                                                                                                                                                                                                                                                     361
                                                                                                                                                                                                                                                                                                                                                              361
                                                                                                                                                                                                                                                                                                                                                                                            301
                                                                                                                                                                                                                                                                                                                                                                                                                       301
                                                                                                                                                                                                                                                                                                                                                                                                                                                 241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             121
721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GLDTYSLGGGGAARVRVRGSTGVAAAAGLHRYLRDFCGCHVAWSGSQLRLPRPLFAVPGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GLDTYSLGGGGAARVRVRGSTGVAAAAGLHRYLRDFCGCHVAWSGSQLRLPRPLPAVPGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEAVAVAAAVGVILLAGAGGAAGDEAREAAAVRALVARLIGPGPAADFSVSVERALAAKP
                                                                            KQLAGLVANYYTPRWRLFLEALVDSVAQGIPFQQHQFDKNVFQLEQAFVLSKQRYPSQPR
                                                                                                                        ELLPALDEVLASDSRFLLGSWLEQARAAAVSEAEADFYEQNSRYQLTLWGPEGNILDYAN
                                                                                                                                                                                  RLLLTSAPSLATSPAFRYDLLDLTRQAVQELVSLYYEEARSAYLSKELASLLRAGGVLAY
                                                                                                                                                                                                                                             RRYGVSHPDAGAAWRLLLRSVYNCSGEACRGHNRSPLVRRPSLQMNTSIWYNRSDVFEAW
                                                                                                                                                                                                                                                                                              EAVNGGPEAARLFPNSTMYGTGMAPEGISQNEVVYSLMAELGWRKDPVPDLAAWVTSFAA
                                                                                                                                                                                                                                                                                                                                  WGPAQIRAVLGAVPRGRLLVLDLFABSQPVYTRTASFQGQPFIWCMLHNFGGNHGLFGAL
                                                                                                                                                                                                                                                                                                                                                  WGPAQIRAVLGAVPRGRLLVLDLFAESQPVYTRTASFQGQPFIWCMLHNFGGNHGLFGAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                VLPAFAGHVPEAVTRVFPQVNVTKMGSWGHFNCSYSCSFLLLAPEDPIFPIIGSLFLRELI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ALGLTQAEINEFFTGPAFLAWGRMGNLHTWDGPLPPSWHIKQLYLQHRVLDQMRSFGMTP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LTEATPNRYRYYQNVCTQSYSFVWWDWARWEREIDWWALNGINLALAWSGQEAIWQRVYL
GDTVDLAKKIFLKYYPGWVAGSW
                      GDTVDLAKKIFLKYYPGWVAGSW 743
                                                    KQLAGLVANYYTPRWRLFLEALVDSVAQGIPFQQHQFDKNVFQLEQAFVLSKQRYPSQPR
                                                                                                                                                                 RLLLTSAPSLATSPAFRYDLLDLTRQAVQELVSLYYEEARSAYLSKELASLLRAGGVLAY
                                                                                                                                                                                                                        RRYGVSHPDAGAAWRLLLRSVYNCSGEACRGHNRSPLVRRPSLQMNTSIWYNRSDVFEAW
                                                                                                                                                                                                                                                                                                                                                                                          KEFGTDHIYGADTFNEMQPPSSEPSYLAAATTAVYEAMTAVDTEAVWLLQGWLFQHQPQF
                                                                                                                                                                                                                                                                                                                                                                                                            KEFGTDHIYGADTFNEMQPPSSEPSYLAAATTAVYEAMTAVDTEAVWLLQGWLFQHQPQF
                                                                                                                                                                                                                                                                                                                                                                                                                                                 VLPAFAGHVPEAVTRVFPQVNVTKMGSWGHFNCSYSCSFLLAPEDPIFPIIGSLFLRELI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LTEATPNRYRYYONVCTOSYSFVWWDWARWEREIDWMALNGINLALAWSGOEAIWORVYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEAVAVAAVGVLLLAGAGGAAGDEAREAAAVRALVARLLGPGPAADFSVSVERALAAKP
                                                                                                        ELLPALDEVLASDSRFLLGSWLEQARAAAVSEAEADFYEQNSRYQLTLWGPEGNILDYAN
                                                                                                                                                                                                                                                                            EAVNGGPEAARLFPNSTMVGTGMAPEGISQNEVVYSLMAELGWRKDPVPDLAAWVTSFAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ALGLTQAEINEFFTGPAFLAWGRWGNLHTWDGPLPPSWHIKQLYLQHRVLDQWRSFGWTP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     551
553
743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          705
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   682
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  565
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      551 A
553 S
82166 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   682
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     643
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                565
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       705
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     F -> K (IN MPS-IIIB).

/FIId=VAR 008990.

G -> R.
/FIId=VAR 008991.

A -> L (IN REF 2; AA SEQUE S -> L (IN REF 2; AA SEQUE S -> L (IN REF 2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        L -> K (1...)
/FTId=VAR 005015.
E -> K (IN MPS-IIIB).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /FTId=VAR 008989.
R -> H (IN MPS-111B).
/FTId=VAR 005012.
A -> V (IN MPS-111B).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 3939; DB 1;
Pred. No. 1.7e-277;
; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /FTId=VAR 005014.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /FTId=VAR_005013.
R -> H (IN MPS-IIIB)
743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             743;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               120
                                                                                                                                      660
                                                                                                            660
                                                                                                                                                                  600
                                                                                                                                                                                                                        540
                                                                                                                                                                                                                                                   540
                                                                                                                                                                                                                                                                               480
                                                                                                                                                                                                                                                                                                        480
                                                                                                                                                                                                                                                                                                                                     420
                                                                                                                                                                                                                                                                                                                                                               420
                                                                                                                                                                                                                                                                                                                                                                                            360
                                                                                                                                                                                                                                                                                                                                                                                                                     360
                                                                                                                                                                                                                                                                                                                                                                                                                                                 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    60
```

```
5
                                                                                      멂
                                                                                                            Ś
                                                                                                                                         뮍
                                                                                                                                                           Ş
                                                                                                                                                                                           В
                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                  멂
                                                                                                                                                                                                                                                                                              Query Match
Best Local S
Matches 104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CPDH MACFA
Q29488;
Q1-NOV-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MACFA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         entities
or send a
                                                                                                                                                                                                                                                                                                                                                     PRINTS; PR00385; P450.
PROSITE; P8007086; CYCCHROME P450; 1.
Oxidoreductase; Monooxygenase; Electron transport; Membrane; Heme; Microsome; Endoplasmic reticulum.
Microsome; Endoplasmic reticulum.
METAL 443
443
443
443
7504AABBBFAAFFRRT (RRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   01-NOV-1997 (Rel. 35,
01-NOV-1997 (Rel. 35,
28-FEB-2003 (Rel. 41,
Cytochicome P450 2D17 (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                 SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                             HSSP; P00179; 1DT6.
InterPro; IPR001128; Cytochrome_P450.
Pfam; PF00067; P450; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL; U38218; AAA79722.1;
PIR; G02938; G02938.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Macaca fascicularis (Crab eating macaque) (Cynomolgus monkey).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SIMILARITY: Belongs to the cytochrome P450 family.
                                                             545
                                                                                                                                                                                                                                                                       343
             594
                                      194
                                                                                       166
                                                                                                                488
                                                                                                                                          109
                                                                                                                                                                   438
                                                                                                                                                                                                                      395
                                                                                                                                                                                             51
                                                                                                                                                                                                                                              12
                                                                                                                                                                                                                                                                                                 104;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         s requires a license agreement (Son an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                           Similarity
--AGGVLAYE--LLPALDEVL---
                                                                                                                                                                    MVGTGMAPEGI ---
                                                                                                                                                                                                                                                TVAIFLLLVDLMHRRQRWAARYPP---GPLPLPGL-----GNLLHVD-------
                                                                                                                                                                                                                                                                          TEAVWLL-----
                                                                                       DOAGRPFRPNSLLDKAVSN
                                                                                                                PDAGAAWR----LLLRSYYNCSGEACRGHNRSPLVRRPSLOMNTSIWYNRSDVFEAWRLLL
                                                                                                                                          VLGFGPRSQGVFLARYGPAWREQRRFSVSTLRNLGLGK---KSLEQWVTEEAACLCAAFT
                                                                                                                                                                                           --FKNTPYCFDQLRRRFGNVFSLQLAWTPVVVLNGLAAVREALVTCGEDTADRPPVPINQ
                                                                                                                                                                                                                    ASFQGQPFIWCMLHNFGGN-------HGLFGALEA-VNGGPEAARL--FPNST
                                                                TSAPSLATSPAFRYD-
                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                 AΑ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Macaca
                                       -RFEYDDPRFLRLFDLTHEALKE---
                                                                                                                                                                                                                                                                                                                                                  56010 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Primates;
                                                                                                                                                                                                                                                                                                            3.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Last sequence update)
Last annotation update)
(EC 1.14.14.1) (CYPIID17).
                                                                                                                                                                                                                                                                      QGWLFQHQPQFWGPAQIRAVLGAVPRGRLLVLDLFAESQPVYTRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .'
                                                                                                                                                                                                                                                                                                 47;
                                                                                                                                                                                                                                                                                              Score 123.5;
Pred. No. 0.21
17; Mismatches
                                                                                                                                                                   -SQNEVVYSLMAELGWRKDPVPDLAAWVTSFAARRYGVSH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Catarrhini;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRT;
                                                                                                                                                                                                                                                                                                                                                    3594AA88F04E58B1
                                                               TROAVQELVSLYYEEARSAYLSKELAS---LLR--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      497
 -ASDSRFLLGSWLEQARAAAVSEAEADFYEQ
                                                                                                                                                                                                                                                                                                           .21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Cercopithecidae;
                                                                                                                                                                                                                                                                                                                        DB 1;
                                                                                                                                                                                                                                                                                                 140;
                                       --- ESGFÉREVÉNAI PLÉÉRI P
                                                                                                                                                                                                                                                                                                                                                    CRC64;
                                                                                          -VIASLTYGR
                                                                                                                                                                                                                                                                                                                       Length
                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         D.C., Tweedie
                                                                                                                                                                                                                                                                                                                           497;
                                                                                                                                                                                                                                                                                                 163;
                                                                                                                                                                                                                                                                                                                                                                SIMILARITY)
                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (By
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          U
                                                                                                                                           165
                                                                                                                                                                    487
                                                                                                                                                                                                                       437
               640
                                       234
                                                                                                                   544
                                                                                                                                                                                              108
                                                                                                                                                                                                                                                                          394
                                                                593
                                                                                          193
                                                                                                                                                                                                                                                50
```

PROSITE; PROSITE; PROSITE;

PS00012; PHOSPHOPANTETHEINE; PS00455; AMP_BINDING; 1. PS50075; ACP_DOMAIN; 3.

Pfam;

PF00501; AMP-binding; 3. PF00668; Condensation; 3. PF00550; pp-binding; 3. PF00975; Thioesterase; 1.

ω .

```
F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              P27743;
01-AUG-1992
01-AUG-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NOCLA
                                                                                                                                                                                                                                                              between the Swiss Institute of Bioinformat
the European Bioinformatics Institute. The
use by non-profit institutions as long
modified and this statement is not removed.
entities requires a license agreement (See
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Coque J.J.R., Martin J.F., Calzada J.G., Liras P.;
"The cephamycin biosynthetic genes pobCb cocoding a large multidomain peptide synthetase, and pcbC of Nocardia lactamdurans clustered together in an organization different from the same gene in Acremonium chrysogenum and Penicillium chrysogenum.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         N-(5-amino-5-carboxypentanoyl)-L-cysteinyl-D-valine synthase (EC 6.3.2.26) (Delta-(L-alpha-aminoadipyl)-L-cysteinyl-D-valine synthetase) (ACV synthetase) (ACVs)
                                                                                                                                                                                           HSSP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACVS
                                                                                                  InterPro; IPR000873; AMP-bind.
InterPro; IPR001242; Condensatn.
InterPro; IPR006163; Pp_bind.
InterPro; IPR006163; Ppantne attach.
InterPro; IPR000379; Ser_estIs_site.
InterPro; IPR001031; Thioesterase.
                                                                                                                                                                                                                     EMBL; X57310; CAA40561.1;
                                                                                                                                                                                                                                                   or send an email to license@isb-sib.ch)
                                                                                                                                                                                                                                                                                                                         This SWISS-PROT entry is copyright. It is produced through a observeen the Swiss Institute of Bioinformatics and the EMBL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE=92065808;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NCBI_TaxID=1913;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Nocardia lactamdurans.
Bacteria; Actinobacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRAIN=VAR LC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                               CATALYTIC ACTIVITY: L-2-aminohexanedioate + L-cysteine + L-valine + 3 ATP = N-[L-5-amino-5-carboxypentanoyl]-L-cysteinyl-D-valine + 3 AMP + 3 diphosphate.

COPACTOR: CONTAINS 3 COVALENTLY BOUND PHOSPHOPANTETHEINES. PATHWAY: Biosynthesis of penicillin and cephalosporin; first step. SIMILARITY: BELONGS TO THE ATP-DEPENDENT AMP-BINDING ENZYME
                                                                                                                                                                                                                                                                                                                                                                     SIMILARITY: Contains 3 acyl carrier
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Microbiol. 5:1125-1133(1991).
FUNCTION: EACH OF THE CONSTITUENT AMINO ACIDS OF CONSTITUENT AMINO ACIDS OF ACV ARE ACTUATED AS AMINOACYL-ADBNYLATES WITH FORWED THROUGH THE PARTICIPATION OF AMINO ACID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          INTERMEDIATES
                                                                                                                                                                                                       S18268; S18268.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NOCLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  235
                                                                                                                                                                                         P14687; 1AMU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GLAGKVLRSQKAFLTQLDELLTEHRMTWDPAQPPRDLTEAFLAEMEKAK-GNPESSFNEE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IGQVRRPEMGDQARMPYTTAVIHEVQRFGDIVPL 372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VFQLEQAFVLSKQRYP-----SQPRGDTVDL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NSRYQLTLWGPEGNILDYANKQLAGLVANYYTPRWRLFLEALVDSVAQGIPFQQHQFDKN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (Rel. 23,
(Rel. 23,
(Rel. 41,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 411;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PubMed=1956290;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pseudonocardiaceae; Amycolatopsis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Last sequence up
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Created!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -MVVADLFSAGMVTTSTTLAWGLLLMILHPDVQRRV---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Actinobacteridae; Actinomycetales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3649
                                                                                                                                                                                                                                                                                                            There are no
                                                                                                                                                                                                                                                                                                                                                                     domains.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                              as
                                                                                                                                                                                                                                                                 . Usage by and for http://www.isb-sib.
                                                                                                                                                                                                                                                                                              its content
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ဝှု
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OF THE TRIPEPTIDE PEPTIDE BONDS THIOLESTER
                                                                                                                                                                                                                                                                                                            restrictions
                                                                                                                                                                                                                                                                                                                                          a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OQEIDDV
                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     293
```

SALLALALALAKA

```
Query Match
Best Local Similarity
Matches 174; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DOMAIN
DOMAIN
DOMAIN
BINDING
BINDING
BINDING
BINDING
ACT SITE
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Repeat;
REPEAT
REPEAT
REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2071
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1988
2625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2288
                                                                                                                                                                                                                                                                   2530
                                                                                                                                                                                                                                                                                                                                                                                                       2491
                                                                                                                               2568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  291
                                                              657
                                                                                                                                                                                              607
                                                                                                                                                                                                                                                                                                                                     547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Antibiotic biosynth
Phosphopantetheine.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EIYLSVVVHHSCFDGWSWDIFRRELAALLDGVPEADLGALRGT-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GW.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RYYONVCTQSYSFVWWDWARWEREI------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGAARVRVRGSTGVAAAAGLHRYLRDFCGCHVAWSGSQLRLPRPLPAVPGELTEATPNRY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AALPGALGTLVRRHPALRTLLKTDDQGVRRQYPIPADDVRLEVP--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGAGGAAGDEAREAAAVRALV-----ARLLGPGPAADFSVSVERALAAKPGLDTYSLGG
                                                                                                                                                                                                                                                                       ∄P--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GNLTYAASLEDDTSASGEIATEKHV----LAEFASAAAQTPIAQLTALDEPGQAALPDA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ALRELARTARVSLYSVILGAWCLMLNMYTGQHDLVVGTPSANRGRPBFDRAVGFFANLLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                QMRSFGMT-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LT-GKRLAALTEFWT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LALGLTQAEINEFFTGPAFLAWGRMGNLHT----WDGPLPPSWHIK----QLYLQHRVLD
PAFYELANRE-
                                                                                                                                                                                                                                                                                                                             APSLATSPAFRYDLLDLTRQAVQELVSLYYEEARSAYLSKELASLLRAGGVLAYELLPAL
                                                                                                                                                                                                                                                                                                                                                                                                          FMLSDTGAKLVL-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     W-----RILLRSVYNCSGEACRGHNRSPLVRRPSLQMNTSIWYNRSDVFEAWRLLLTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NERANRLAHHLRSVAEPRADELIALVLDKSELTLVAILAVWKAGAAYMPIDPSYPDDRIA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SQ--NEVVYSLMAELGWRKDP--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TRRARRPGGP-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TRTASFQGQPFIWCMLHNFGGNHGLFGALEAVNGGPEAARLFPNSTMVGTG---MAPEGI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LQLNFTLQNV----SDH---TSALTGYQPDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IGSLFLRELIKEFGTDHIYGADTFNEMOPPSSEPSYLAAATTAVYEAMTAVDTBAVWLLO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LRVRVDPAATLPAYVRSVGEAV--VAAQVH-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -----PVLPAFAGHVPEAVTRVFPQVNVTXMGSWGHFNCSYSCSFLLAPEDPI-FPI
                                                                                                                                                                                              DEVLASDSRFLIGSWLEQARAAAVSEAEADFYEQNSRYQLTLWGPEGNIL---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1014
2079
788
1864
2910
820
1896
2944
3502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                          -DYANKQLAGIVANYYTPRWRLFLEALVDSVAQGIPFQQHQFD
                                                                                                                                                                                                                                                                       AENP--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1937
2985
857
1933
2981
820
1896
2944
3502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STTVDSRAELDEVLTE -----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             biosynthesis; Multifunctional
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               404079
                                                                                                                                                                                                                                                                   -VTETTSTELAYAIY---TSGTTGKPKAVLVSHGSV-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        63;
                                                                                                                                                                                                                                                                                                                                                                                                       - AGEAHGSRVRG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ---FQHQPQFWGPAQIRAVLGAVPRGRLLVLDLFAESQ-PVY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACYL CARRIER (ACP) 1
ACYL CARRIER (ACP) 2
ACYL CARRIER (ACP) 3
PHOSPHOPANTETHEINE (PHOSPHOPANTETHEINE (PHOSPHOPANTETHE (PHOSPHOPANTETHE (PHOSPHOPANTETHE (PHOSPHOPANTETHE (PHOSPHOPANTETHE (PHOSPHOPANTETHE (PHOSPHOPANTETHE (PHOSPHOPANTETHE (PHOSPHO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ₹.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GRCTRLF----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 119;
Pred. No. 6.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PHOSPHOPANTETHEINE (BY SIMILA THIOESTERASE (BY SIMILARITY). WW.; 6FD095704F858E6B CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DOMAIN
DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -GALGGFETIALPLDHPRPPRFDYRGRELEFELDERTTE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          w N
                                                                                                                                   ANYVFDFSVEQLALSVLGGHKLLVPPPSAADD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (ADIPATE-ACTIVATING).
(CYSTEINE-ACTIVATING).
(VALINE-ACTIVATING).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ----EEVÄATWPDRVAVVHGDVRLTYREL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -----GGWTTTKFD-LSATMTETATGLA
SYLSGTPTQVERFD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RAGYVFRLHEELPI----RAEAFDHGD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VPDLAAWVTSFAARRYGVSHPDAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           283;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DWMALNGINLALAWSGOEAIWORVY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -GELPFEQLVKELKVEKDPSRHPI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             E (BY SIMILARITY).
E (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             enzyme;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                          -LISGDVLDLEQUDITG
2650
                                                                 698
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -YGEFAVWQRQY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           306;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2070
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  129
                                                                                                                                                                                                                                                                                                                                                                                                          2529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         69
                                                                                                                                                                                                         656
                                                                                                                                                                                                                                                                          2567
                                                                                                                                                                                                                                                                                                                                        606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
CPD6_H
   REPRESENTATION OF THE PROPERTY OF A CONTROL OF THE PROPERTY OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CPD6 HUMAN
P10635; Q16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HUMAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDILING-GOVERN-YOUR CONTROL OF THE MEDILING WEBTILE OF GONZALEZ F.J., Vilbois F., Hardwick J.P., McBriue Of Gonzalez F.J., Vilbois F., Hardwick J.P., McBriue Of Gonzalez F.J., McBriue F.J., McB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-JUL-1989 (Rel. 11, Created)
01-JUL-1989 (Rel. 11, Last sequence update)
15-SEP-2003 (Rel. 42, Last annotation updat
Cytochrome P450 2D6 (EC 1.14.14.1) (CYPIID6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WARIANY LINE-201 AND ACCOUNT OF THE PROPERTY O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      debrisoquine metabolism.";
Nature 331:442-446(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE=88122614; PubMed=3123997;
Gonzalez F.J., Skoda R.C., Kindrick J.P., Meyer U.A.;
Nebert D.W., Gelboin H.V., Hardwick J.P., Meyer U.A.;
"Characterization of the common genetic defect in humans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryota; Metazoa;
Mammalia; Eutheria;
                         VARIANT GLU-212 (CYP2D6*6B/6C).
MEDLINE=95172594; PubMed=7868129;
Daly A.K., Leathart J.B., London S.J.,
Pan inactive cytochrome P450 CYP2D6 al.
                                                                                                                                                                                   Naunyn
[7]
                                                                                                                                                                                                 Evert B., Griese E.U., Eichelbaum M.; Rissense mutation in exon 6 of the histidine 324 to proline exchange is a metabolizer phenotype of sparteine.", Naunyn Schmiedebergs Arch. Pharmacol.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE=90072069; PubMed=2574001;
Kimura S., Umeno M., Skoda R.C., Meyer U.A., Go''The human debrisoquine 4-hydroxylase (CYP2D) lidentification of the polymorphic CYP2D6 gene, pseudogene.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TISSUE=Liver;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE=88314109;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NCBI_TaxID=9606;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4-hydroxylase).
                                                                                                                                                                                                                                                                                                                                                                         VARIANT PRO-324 (CYP2D6*7).
MEDLINE=95147995; PubMed=78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pharmacogenetics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     population associated with lower
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    phenotype
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VARIANT LYS-281 DEL (CYP2D6*9)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    netabolism."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Condo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           řokota H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WEDLINE=94115362;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ARIANTS SER-34 AND THR-486 (CYP2D6*10)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pharmacogenetics 1:26-32(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      'Evidence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              J. Hum.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     sequence and assignment mics 2:174-179(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q16752
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             for a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gonzalez
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .s (Human).
Metazoa; Chordata; C
---haria; Primates; (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    115362; PubMed=8287064; Tamura S., Furuya H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Genet. 45:889-904(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             new, variant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3:256-263 (1993)
                                                                                                                                                                                                                                                                                                                                                                             PubMed=7845481;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PubMed=3410476;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CYP2D6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Craniata; Vertebrata; I Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Kimura S.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ion update)
(CYPIID6)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             allele
                                        J., Idle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OATA
                                                                                                                                                                                                                                                                          e CYP2D6 gene leading associated with the I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 497
                                                                                                                                                                                                                350:434-439(1994)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         rates of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            rates
                                        containing
                                                                            J.R.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Watanabe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gonzalez F.J.;
) locus: sequence
e, a related gene,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (P450-DB1) (Debrisoquine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ο.Ψ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         sparteine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         and deduced
chromosome ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .
₹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ø
                                           D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Japanese
                                               deletion
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Kanazawa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  deficient
```

and

ĹΠ

and

Q)

Σ.

22."; amino

8 밁 δ 유 Ś 밁 S

8

Ş 밁 Ś 문 Ś 밁 Š B

and

밁

Ş

B

Ş 밁 Ś 밁 Ś 밁 Ś 밁

B

```
Pfam; PF00067; p450; 1.
PRINTS; PR00385; P450.
PROSITE; PS00086.
                                                                                                                                                                         EMBL; M20403; AAA52153.1; -.
EMBL; X08006; CAA30807.1; -.
EMBL; M3388; AAA53500.1; -.
PIR; S01199; O4HUD1.
HSSP; P00179; 1DT6.
                                                                                                                                                                                                                                                                                                                                          the European Bioinformatics Institute. Thuse by non-profit institutions as long modified and this statement is not removed entitles requires a license agreement (See or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                This
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE=96209916; PubMed=8655150; Marez D., Legrand M., Sabbagh N., "An additional allelic variant of metabolism of sparteine."; Hum. Genet. 97:668-670(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      "A novel mutant variant of the CYP2D6 black African population: association hydroxylase activity.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE=97385645; PubMed=9241659;
Marez D., Legrand M., Sabbagh N., Guidice J.M., S
Lafitte J.J., Meyer U.A., Broly F.;
Laforphism of the cytochrome P450 CYP2D6 gene
"Polymorphism of the cytochrome P450 CYP2D6 gene
population: characterization of 48 mutations and
frequencies and evolution.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE=97126511;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VARIANT ARG-169 (CYP2D6*14).
MEDLINE=99164054; PubMed=10064570;
Wang S.L., Lai M.D., Huang J.D.;
"G169R mutation diminishes the metabolic activity of CYP2D6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VARIANT ILE-107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Chinese."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pharmacogenetics 7:193-202(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VARIANTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ingelman-Sundberg M.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CYP2D6 IS CHARACTERIZED BY TWO PHENOTYPES, THE EXTENSIVE METABOLIZER (PM). OF THE CAUCASIAN POPULATIONS OF EUROPE AND POOR METABOLIZER (PM). OF THE CAUCASIAN POPULATIONS OF EUROPE AND NORTH AMERICA, 5%-10% ARE OF THE PM PHENOTYPE AND ARE UNABLE TO METABOLIZE THE ANTIHYPERSENSITIVE DEBRISOQUINE AND NUMEROUS OTHER DRUGS. POLYMORAPHISM: CYP2D6*7 MAS ALSO KNOWN AS CYP2D6E, CYP2D6*9 AS CYP2D6C, CYP2D6*10 AS CYP2D67, CYP2D6*17 AS CYP2D6Z. SIMILARITY: Belongs to the cytochrome P450 family. DATABASE: NAMECYCytochrome P450 Allele Nomenclature Committee; NOTE=CYP2D6, alleles;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CUNCTION: RESPONSIBLE FOR THE METABOLISM OF MANY DRUGS AND ENVIRONMENTAL CHEMICALS THAT IT OXIDIZES. IT IS INVOLVED IN METABOLISM OF BUGS SUCH AS ANTIARHYTHMICS, ADRENOCEPTOR ANTACONISTS, AND TRICYCLIC ANTIDEPRESSANTS.

CATALYTIC ACTIVITY: RH + reduced flavoprotein + O(2) = ROH + OXIDIZED FROM STRUCKEIN + H(2)O.

SUBCELLULAR LOCATION: Membrane-bound. Endoplasmic reticulum.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         INDUCTION: By pregnancy. POLYMORPHIC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WWW="http://www.imm.ki.se/CYPalleles/cyp2d6.htm".
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SWISS-PROT entry is copyright. It is produced through a collaboration sen the Swiss Institute of Bioinformatics and the EMBL outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Metab. Dispos. 27:385-388(1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5511; PubMed=8971426;
C., Persson I., Bertilsson L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (CYP2D6*12)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (CYP2D6*17)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 42:713-719(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Lo-Guidice J.M., Boone P., the CYP2D6 gene causing imp
                                                                                                                                                                                                                                                                                                                                                                                              removed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                    moved. Usage by and for commercial (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OXIDATIVE DRUG METABOLISM
                                                                                                                                                                                                                                                                                                                                                                                                                   There are no restrictions ong as its content is in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (CYP2D6*17) common in a diminished debrisoquine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Hasler
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Spire
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           53 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        a European
alleles, their
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           impaired
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŕn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Broly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ВХ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HHE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DRUG
                                                                                                                                                                                                                                                                                                                                                                                                                                                      엵
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     '11
.
                                                                                                                                                                                                                                                                                                                                                                                                                              9
```

```
Ś
                                              멼
                                                                          S
                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                        밁
                                                                                                                                                                                                   ş
                                                                                                                                                                                                                                                     Query Match
Best Local
                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                     CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                   VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Microsome;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Oxidoreductase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 METAL
                 490
                                                                            440
                                                                                                                                           397
                                                                                                                                                                                                         345
                                                                                                             51
                                                                                                                                                                          14
                                                                                                                                                                                                                                       97;
                                                                                                                                                                                                                                                       Similarity
AGAAWRLLLRSVYNCSGEACRGHNRSPLVRRPSLQMNTSIWYNRSDVFEAWRLLLTSAPS
                                                                                                                                                                          AIFLLLVDLMHRRQRWAARYPP---GPLPLPGL---
                                                                                                                                                                                                       AVWLL------QGWLFQHQPQFWGPAQIRAVLGAVPRGRLLVLDLFAESQPVYTRTAS
                                              GFGPRSQGVFLARYGPAWREQRRFSVSTLRNLGLGK---KSLEQWVTEEAA
                                                                                                             FONTPYCFDQLRRRFGDVFSLQLAWTPVVVLNGLAAVREALVTHGEDTADRPPVPITQIL
                                                                                                                                                                                                                                                                                                374
497
                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                   410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   26
                                                                                                                                                                                                                                                                                                     AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Monooxygenase;
                                                                                                                                                                                                                                                                                                     374
55801
                                                                                                                                                                                                                                                                                                                                                                                                    486
                                                                                                                                                                                                                                                                                                                                                                                                                                 410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   26
                                                                                                                                                                                                                                                     3.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                reticulum;
                                                                                                                                                                                                                                                                                                      MW.
                                                                                                                                                                                                                                      53;
                                                                            -SQNEVVYSLMAELGWRKDPVPDLAAWVTSFAARRYGVSHPD
                                                                                                                                                                                                                                      Score 117.5;
Pred. No. 0.56
3; Mismatches
                                                                                                                                                                                                                                                                                                        /FTId=VAR_008374.

S -> T (in allele CYP2D6*2, allele CYP2D6*10, allele CYP2D6*12, allele CYP2D6*14 and allele CYP2D6*17; impaired metabolism of sparteine).

/FTId=VAR_008341.

M -> V (IN REF. 3).
                                                                                                                                                                                                                                                                                                                                                                                                       R -> C (in allele CYP2D6*2, alle
CYP2D6*12, allele CYP2D6*14 and
CYP2D6*17; dbSNP:16947).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /FTId=VAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /FTIG=VAR_008336.
G -> R (IN ALLELE CYP2D6*12; IMPAIRED
METABOLISM OF SPARTEINE).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  P -> S (in allele CYP2D6*10 and allele CYP2D6*14; poor debrisquone metabolism)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     R -> C (IN ALLEL /FTId=VAR 008368 P -> S (in allel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACTIVITY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      / -> M \LL -- M \LL -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DEBRISQUONE METABOLISM)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DEBRISQUONE METABOLISM)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FTId=VAR 008348.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FTId=VAR_014633.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FTId=VAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FTId=VAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FTId=VAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FTId=VAR 008339.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FTId=VAR_00833
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FTId=VAR_008337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FTId=VAR_008369.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FTId=VAR 008367
                                                                                                                                                                                                                                                                                                      543F4D5F0DE8CDAC CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Electron transport; Membrane; Heme;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; Polymorphism.
N (HEME AXIAL L
M (IN ALLELE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              d=VAR_008371.
L (IN dbSNP:1800754)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           d=VAR_008340.
L (IN_ALLELE CYP2D6*24)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      d=VAR_001256.
V (IN ALLELE CYP2D6*23)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (IN ALLELE CYP2D6*14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (in allele
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (IN ALLELE CYP2D6*9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             008347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            008370
                                                                                                                                          HGLFGALEA-VNGGPEAARL--FPNSTMV
                                                                                                                                                                                                                                                       .56;
                                                                                                                                                                                                                                                                    DB 1;
                                                                                                                                                                                                                                       144;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  E CYP2D6*22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LIGAND)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CYP2D6*7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CYP2D6*33).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CYP2D6*6B and allele
                                                                                                                                                                          -GNLLHVD
                                                                                                                                                                                                                                                                    Length
                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SSOT
                                                                                                                                                                                                                                       153;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       POOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         POST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           allele
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                잁
                                                                                                                                                                                                                                       Gaps
                                                                                                                                           439
                 549
                                                                                489
                                              158
                                                                                                             110
                                                                                                                                                                            υ
Ο
                                                                                                                                                                                                                                         22;
```

```
RESULT 5
YK95_RHIME
ID YK95_R
OS2999
DT 30-MAY
DT 30-MATI
DT 10-MAII
PT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             덩
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           28-FEB-2000 (Rel. 39, Last se
28-FEB-2003 (Rel. 41, Last an
Hypothetical protein R02095.
R02095 OR SMC01491.
Rhizobium meliloti ''
Bacteria'
     NP_BIND
CONFLICT
SEQUENCE
                                                                                                                                                                                                                                                                                                           This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Capela D., Barloy-Hubler F., Gouzy J., Bothe G., Ampe F., Batut Boistard P., Becker A., Boutry M., Cadieu E., Dreano S., Gloux & Godrie T., Goffeau A., Kahn D., Kiss E., Lelaure V., Masuy D., Pohl T., Portetelle D., Puehler A., Purnelle B., Ramsperger U., Renard C., Thebault P., Vandenbol M., Weidner S., Galibert F., "Analysis of the chromosome sequence of the legume symbiont Sinorhizobium meilloti strain 1021.", Proc. Natl. Acad. Sci. U.S.A. 98:9877-9882 (2001).
                                                                                                                                           SMART; SM00044; CYCc; PROSITE; PS50125; GUA
                                                                                                                                                                                                EMBL; AL591789; CAC46674.1;
EMBL; M30934; AAA88525.1; A
InterPro; IPR001054; G_cycl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Bent A.F., Signer E.R.; Submitted (NOV-1990) to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Rhizobium meliloti (Sinorhizobium meliloti).
Bacteria, Proteobacteria, Alphaproteobacteria;
Rhizobiaceae, Sinorhizobium/Ensifer group; Sino
                                                                                        Hypothetical
DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRAIN=1021;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE OF 1-483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE=21396507;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NCBI_TaxID=382;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KY95_RHIME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SIMILARITY: Contains 1 guanylate cyclase domain. SIMILARITY: TO M.LEBRAE MLCB2407.09. CAUTION: REF. 2 SEQUENCE DIFFERS FROM THAT SHOWN FRAMESHIFTS IN POSITIONS 311 AND 321.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AMMPYTTAVIHEVORF----GDIVPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GNILDYANKQLAGIVANYYTPRWRLFLEALVDSVAQGIPFQQHQFDKNVFQLEQ-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FLTQLDELLTEHRMTWDPAQPPRDLTEAFLAEMEKAK-GNPESSFNDENLR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LLPALDEVI------ASDSRFLLGSWLEQARAAAVSEAEADFYEQNSRYQLTLWGPE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LTCGRRFEYDDPRFLRLLDLAQEGLKEESGFLREVLNAVPVLLHIPAL--AGKVLRFQKA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LATSPAFRYD.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ---IVVADLFSÄGMVTTSTTLAWGLILMILHPDVQRRV---QQEIDDVIGQVRRPEMGDQ
  50125; GUANYLATE CYCLASES_2; 1.

l protein; ATP-binding; Complete pro
3 GUANYLATE CYCLASE.
3 ATP (POTENTIAL).
323 A -> P (IN REF. 2)
1029 AA; 112709 MW; 4EA478188B6019
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ---AFVLSKORYPSQPRGDTVDL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PubMed=11481430;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -----LIDLTROAVOELVSLYYEEARSAYLSKELASILRAGGVLAYE--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Last sequence up
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      N.A.
                                                                                                                                                                                                   cyclase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ·CLCAAFANHSGRPF--RPNGLLDKAV----SNVI--
                                                                                                                                                                                                                                 1; -.
ALT_FRAME
        4EA478188B601958 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1029
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 update)
                                                                                     CYCLASE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 À
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ria; Rhizobiales;
Sinorhizobium.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DUE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Batut
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OWI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ۲.
ز
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -AS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             188
```

RESULT
RHSA_EC
ID _RH
AC P1
DT 01
DT 16
DT 16
DE RH

ECOLI

STANDARD;

1377 AA

RHSA ECCLI P16916; 01-AUG-1990 01-AUG-1990 16-OCT-2001

(Rel. 15, Created)
(Rel. 15, Last sequence update)
(Rel. 40, Last annotation update)

RheA

protein

```
B
                                                                         Ş
                                                                                                                          Ś
                                                                                                                                                                                 8
                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                     문
                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              먉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
밁
                     S
                                                                                                      밁
                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Sim
Matches 169;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local Similarity 19.0 hes 169; Conservative
                                                                                                                                                             593
                                                                                                                                                                                                                 540
                                                                                                                                                                                                                                            468
                                                                                                                                                                                                                                                                                                                            425
                                                                                                                                                                                                                                                                                                                                                      392
                                                                                                                                                                                                                                                                                                                                                                                 381
                                                                                                                                                                                                                                                                                                                                                                                                           347
                                                                                                                                                                                                                                                                                                                                                                                                                                     324
                         684
                                                   664
                                                                            624
                                                                                                       623
                                                                                                                                564
                                                                                                                                                                                       504
                                                                                                                                                                                                                                                                      480
                                                                                                                                                                                                                                                                                                429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              17
                        DSVAQGIPF-QQHQF----
                                                                                                                                                                                                                  LPLLRALLPDFGKSALANAADTLCETGFLTRIRVPGRTAYGFRH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ALVLEGSREGWTREPVTGAALAMAARLQAITAPNSVLVSEETRH-----LAGRSYAFVF-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GAGGAAGDEAREAAAVRALVARLLGPGP-----AADFSVSVERALAAKPGLD
-EIARRRPMSEQSQWFPIYWGWWLTGQDFRVMHDRALEVRSMLSKANEP
                                                   HALDLCGQMSESDTAEALKLLALTALGP
                                                                            QARAAAVSEAEADFYEQNSRYQLTLWGPEGNILDYANKQLAGLVANYYTERWRLFLEALV
                                                                                                       GALA-----
                                                                                                                                  TROAVQELVSLYYEEARSAYLSKELASLLRAGGVLAYELLPALDEVLASDSRFLLGSWLE
                                                                                                                                                             ----AVLRKQRQVLHRR----LFTAVNQNRG--MAAW---
                                                                                                                                                                                     CSGEACRGHNRSPLVRRPSLOMVTSIWYNRSDVFEAWRLLLTSAPSLATSPAFRYDLLDL
                                                                                                                                                                                                                                                                     IEEICQWVSQNVEPDTMRLSESANPSHVSAFESILESRLQQLGTAREVARAAAVAGTQVT
                                                                                                                                                                                                                                                                                                                            SEWLDAANPTRLALRPLDSDETRLAIKAKWP----
                                                                                                                                                                                                                                                                                                                                                   ----TRTASFQGQPFIWCMLHNFGGNHGLFGALEAVNGGPE--
                                                                                                                                                                                                                                                                                                                                                                                                          WILLOGWIFQHQPQFWGPAQI-------RAVLGAVPR--GRILVIDIFAESQPVY-
                                                                                                                                                                                                                                                                                                                                                                                                                                       VAALFERNGIRDFAVVDVFSYLLGAQG-SRLQSNEDFKAIREKAHRALLRALEAVCRR--
                                                                                                                                                                                                                                                                                                                                                                                                                                                              IGSLFLRELIKEFGT----DHIYGADTFNEMOPPSSEPSYLAAATTAVYEAMTAVDTEAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FQCLPGGFRSTLHPLLNNLPEAVS - - - -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ----SFGMTPVLPAFAGHVPEAVTRVFPQVNVTKMGSWGHFNCSYSCSFLLAPEDPIFPI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GPLINRENEINTIGQLWDGVLAGQGSV--VLIQGDAGIGKSRLLREIRRRTRAKKSKLLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DWARWEREIDWMALNGINLALAWSGQEAIWQRVYLALGLTQAEINEFFTGPAFLAWGRMG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               QHEAGDGGVALFPIELEAKDAASLAIRAGLG--IVEACKRVGREAGQDDLQVRVGIATSV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TYSLGGGGAA----RVRVRGSTGVAAAAGLHRYLRDFC-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGSSVRGGERR---IVTALCYDLVGSTDLMHVMDIEDYQELMSAFQLASKQAIASHSGVM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ----NLHT----WDGPLPPSWHIKQLYLQ-----HRVLDQMR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCHVAW-----SGSQLRLPRPLPAV--PGELTEATPNRYRYYQNVCTQSYSFVWW
                                                                                                                                                                                                                                                                                                -AARLFPNSTMVGTGMAPEGISQNE-VVYSLMAELGWRKD------P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ----QGSKELKGFAAPEKVWRALGHKVGVDR---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2.8%;
                                                                                                       -EHAERAGIVEEAVPIFIAAG------KESSSRSAMIEAROFIE
                                                                                                                                                                                                                                                                                                                                                                                 -ĠPĀVVAVEDVHWIDPTSRDLĹGEAARIIAKFPVL-LVTTSRPSYA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 110.5; D
Pred. No. 4.8;
98; Mismatches
                                                                                                                                                                                                                                            TSFAAR-----RYGVSHPDAGAAWRLLLRSVYN
                       -DKNVFQ---LEQAFVLSKQRYF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       279;
                                                                                                                                                                                                                                                                                                                            -EHRLALLPDLFDÁTÉRISGGVPLF
                                                     ILIGTVGLSSEPARRLYEDAV-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels 343;
                                                                                                                                                                                                                    -----TLIQETIYN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1029;
                           716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -FYAFGRMG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PTAAA
                                                                                                                                                              IDT
                                                                                                                                                                                                                                                                                                                             479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 140
                                                                               683
                                                     712
                                                                                                          663
                                                                                                                                    623
                                                                                                                                                                                          563
                                                                                                                                                                                                                    592
                                                                                                                                                                                                                                              503
                                                                                                                                                                                                                                                                         539
                                                                                                                                                                                                                                                                                                                                                       428
                                                                                                                                                                                                                                                                                                                                                                                   424
                                                                                                                                                                                                                                                                                                                                                                                                             391
                                                                                                                                                                                                                                                                                                                                                                                                                                        380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              63
                                                                                                                                                              622
                                                                                                                                                                                                                                                                                                   467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          97
```

```
InterPro; IPR001826; RHS.
InterPro; IPR001826; RHS.
InterPro; IPR005530; YD.
Pfam; PF03527; RHS; 1.
PRINTS; PR00794.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        [2]
SEQUENCE FROM N.A.
SEQUENCE FROM N.A.
STRAIN-K12 / MG1655;
STRAIN-K12 / MG1650; Put
                                                                                                                                                                                                                                                                                                             EMBL; L19044; AAC950
EMBL; U00039; AAB185
EMBL; AE000437; AAC7
PIR; C65159; C65159.
           TRANSMEM
DOMAIN
REPEAT
                                                                                                                                                                                                     Signal;
SIGNAL
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                           This SWISS-PROT entry is copyright. It is produced through a collab between the Swiss Institute of Bioinformatics and the EMBL outst the European Bioinformatics Institute. There are no restrictions use by non-profit institutions as long as its content is in modified and this statement is not removed. Usage by and for constitution and the statement is not removed. Usage by and for constitution of the statement is not removed. The statement is not removed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE=94316500; PubMed=8041620;
Sofia H.J., Burland V., Daniels D.L., Plus
"Analysis of the Escherichia coli genome.
region from 76.0 to 81.5 minutes";
Nucleic Acids Res. 22:2576-2586(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE=90094253; PubMed=2403547; Feuhner A.F., Sadosky A.B., Feuhner G., Gray J.A., Kirschman J.A., Lehner A.F., Sadosky A.B., Vlazny D.A., Zhang J., Zhao S., Hill C.W.; Vlazny O.A., Zhang J., Zhao S., Hill C.W.; "Structure of the rhsA locus from Escherichia coli K-12 and comparison of rhsA with other members of the rhs multigene family."; Bacteriol. 172:446-456(1990).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NCBI_TaxID=562;
[1]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Escherichia coli.
Bacteria; Proteobacteria; Gammaproteobacteria; Enterobacteriales;
Enterobacteriaceae; Escherichia.
                                                                                                                                                                                                                                                                                                                                                                        or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Hill C.W., Sandt C.H., Vlazny D.A.;
"Rhs elements of Escherichia coli: a family of genetic composites
each encoding a large mosaic protein.";
Mol. Microbiol. 12:865-871(1994).

-!- FUNCTION: RHS ELEMENTS HAVE A NONESSENTIAL FUNCTION. THEY MAY
PLAY AN IMPORTANT ROLE IN THE NATURAL ECCLOGY OF THE CELL.
-!- DOMAIN: EACH RHS APPEARS TO CONSIST OF A HIGHLY CONSERVED 141
AMINO FRAGMENT FOLLOWED BY A HIGHLY DIVERGENT CARBOXY TERMINUS
-!- SIMILARITY: BELONGS TO THE RHS FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REVIEW
                                                                                                                                                                                                                                        TIGRFAMs;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE=95020608; PubMed=7934896;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OR B3593
                                                                                                                                                                                                                                        PR00394; RHSPROTEIN.
s; TIGR01643; YD_repe
                                                                                                                                                                                                                          Multigene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FROM
N.A.
                                                                                                                                                                                                                                                                                                                                   AAC95065.1; -.
AAB18570.1; -.
                                                                                                                                                                                                                                                                                                                          AAC76617.1;
 family; Transmem
                                                                                                                                                                                                                Transmembrane; Repeat;
POTENTIAL.
RHSA PROTEIN.
POTENTIAL.
28 X APPROXIM
                                                                                                                                                                              APPROXIMATE
                                                                                                                                                                                                                                        15.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Plunkett G. 111, pru
ome. V. DNA sequence
                                                                                                                                                                                                                                                                                                                                                                                   (See http://www.isb-sib.ch/announce/
                                                                                                                                                                              TANDEM
                                                                                                                                                                                                                            Complete
                                                                                                                                                                              REPEATS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Blattner F.R.;
                                                                                                                                                                                                                                                                                                                                                                                                                                  gh a collaboration -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ģ,
                                                                                                                                                                                                                            proteome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         the
                                                                                                                                                                                                                                                                                                                                                                                                 commercia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             kDa
                                                                                                                                                                                                                                                                                                                                                                                                                       엵
                                                                                                                                                                                                                                                                                                                                                                                                           9
```

RESULT 7

SECHER

THISB ECOLI STANDARD; P16917; P76701; 01-AUG-1990 (Rel. 15, Create 01-NOV-1997 (Rel. 35, Last s 16-CCT-2001 (Rel. 40, Last al RhsB protein precursor. RHSB OR B3482.

15, Created)

1411

₽

sequence update) annotation updat

update)

```
δ
                               뮍
                                               Ś
                                                                                                   B
                                                                                                                                     돲
                                                                                                                                                                                      Ş
뮍
                                                             g
                                                                               δ
                                                                                                                5
                                                                                                                                                    Ś
                                                                                                                                                                       밁
                                                                                                                                                                                                         맑
                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                           맒
                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                            5
                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                              5
                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local S
Matches 128
                                                                                                                                                                                                                                                                                                                                                                                                                                      REPEAT
REPEAT
REPEAT
REPEAT
REPEAT
REPEAT
REPEAT
REPEAT
REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                    REPEAT
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REPEAT
REPEAT
REPEAT
               546
                                 449
                                                491
                                                                  392
                                                                                                   332
                                                                                                                     406
                                                                                                                                      297
                                                                                                                                                      350
                                                                                                                                                                        259
                                                                                                                                                                                        290
                                                                                                                                                                                                          210
                                                                                                                                                                                                                           231
                                                                                                                                                                                                                                           176
                                                                                                                                                                                                                                                             182
                                                                                                                                                                                                                                                                             125
499
                                                                                                                                                                                                                                                                                             134
                                                                                                                                                                                                                                                                                                                                109
                                                                                                                                                                                                                                                                                                                                                                                   128;
                                                                                                                                                                                                                                                                                                                65
                                                                                                                                                                                                                                                                                                                                                                  57
                                                                                                                                                                                                                                                                                                                                                 Φ
                                                                                                                                                                                                                                                                                                                                                                                  Similarity 20.8
28; Conservative
                                                                                                                                                                                                                                                                                             NVC--TQSYSFVWWDWARWEREIDWMALNGINLALAWSGQEAIWQRV
TAPD-GDITRYRYD
               SAPSLATSPAFRYD
                                                                  SLDRREVLHT-QGEAGLKRVVKKEHADGSVTQSQFDAVGRLRA--QTDAAGRTTEYSPDV
                                                                                                                                                                                                                                                                                                                                RLPRPLPAV-----
                                                                                                                                                                                                                                                                                                                                                 AARQG-DMTQYGGSIVQGSAGVRIGAPTGVACSVCPGGVTSGHPVNPLLGAKVLPGETDI
                                                                                                                                                                                                                                                                                                                                                                 AAKPGLDTYSLGGG----GAARVRVRGSTGVAAA---AGL--HRYLRDFCGCHVAWSGSQL
                                                 GAAWRLLLRSVYNCSGEAC----RGHNRSPLVRRP-SLQMNTSIWYNRSDVFEAWRLLLT
                                                                                    ---QNEVVYSLMAELGWRK--
                                                                                                   QVRSFTYDDKYRGRMVAHRHTGRPEIRYRYDSDGRVTEQLNPAGLSYTYQYEKDRITITD
                                                                                                                     MLHNFGGNHGLFGALEA--VNGGPEAARLFPNSTMVGTGMAPEGIS-----
                                                                                                                                                      QGWLFQHQPQFWGPAQIRAV----LGAVPRGRLLVLDLFAESQPVYTRTASFQGQPFIWC
                                                                                                                                                                                        IIGSLFLRELIKEFGTDHIYGADTFNEMQPPSSEPSYLAAATTAVYEAMTAVDTEAVWLL
                                                                                                                                                                                                          TGLVDRFGRTQTFHR----
                                                                                                                                                                                                                         DOM-RSFGMTPVLPAFAGHVPEAVTRVFPQVNVTKMGSWGHFNCSYSCSFLLAPEDPIFP
                                                                                                                                                                                                                                            TNSPQ--
                                                                                                                                                                                                                                                             LGLTQAEINEFFTGPAFLAWGRMGNLHTW---
                                                                                                                                                                                                                                                                             HLFPGEDGYS------RSESLWLVRGGVAKLDEGHRLAALWQALPEELRLSPHRYLA
                                                                                                                                                                                                                                                                                                                ALPGPLPFILSRTYSSYRTKTPAPVGSLGPGWKMPADIRLQLRDNTLILSDNGGRSLYFE
                                                                                                                                                                        -----ARQQAISGGTE
                                                                                                                                                                                                                                                                                                                                                                                                                    672
692
712
735
808
829
851
872
872
8931
9851
9851
9851
9851
9851
                                                                                                                                      ---THDPEY--PENLPAAPLVRYGWTPRGELAV
                               LITRITTPDGRASAFYYNHHNOLTSATGPDGLEL
                                                                                                                                                                                                                                                                                                                                                                                                                    À,
                                                                                                                                                                                                                                                                                                                                                                                                                              1186
                                                                                                                                                                                                                                            .---GP--
                                                                                                                                                                                                                                                                                                                                                                                                                                             691
7111
7341
758
828
850
850
930
930
930
                                                                                                                                                                                                                                                                                                                                                                                           2.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                     156320
               559
                                                                                                                                                                                                                                                                                                                               58;
                                                                                                                                                                                                                                            -WWLLG---
                                                                                                                                                                                                                                                                                                                                                                                                                     ¥
                                                                                                                                                                                                                                                                                                                                                                                           Score 109.5;
Pred. No. 8.
                                                                                                                                                                                                                                                                                                                                                                                                                              -EAAGEFSGEITGVTDGAWRHFRLVLTTQAQRAEE----
                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                     21ACA989E74200FE
                                                                                                                                                                                                                                            -WCERVPEADEVLPAPLPP
                                                                                                                                                                         -PSAFPDTLPGYTE--YGRDNGIRLSAVWL-
                                                                                                                                                                                                                                                             -----DGPLPPSWHIKQLYLQHRVL
                                                                                                                                                                                                                                                                                                                                                                                                    DB
                                                                                    DPVPDLAAWVTSFAARRYGVSHPDA
                                                                                                                                                                                                                                                                                                                                                                                                   سو
--
                                                                                                                                                                                                                                                                                                                                                                                                   Length
                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                     CRC64;
                                  RREYDELGRLIQE
                                                                                                                                                                                                                                                                                                                                                                                                    1377;
                                                                                                                                                                                                                                                                                                                                                                                  219;
                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                            -YRVL
                                                                                                                                                                                                                                                                                               YLA
                                                  545
                                                                                                                                                                                                                                                                              175
                                  498
                                                                   448
                                                                                    490
                                                                                                     391
                                                                                                                      449
                                                                                                                                      331
                                                                                                                                                        405
                                                                                                                                                                         296
                                                                                                                                                                                         349
                                                                                                                                                                                                          258
                                                                                                                                                                                                                            289
                                                                                                                                                                                                                                           209
                                                                                                                                                                                                                                                             230
                                                                                                                                                                                                                                                                                               181
                                                                                                                                                                                                                                                                                                                124
                                                                                                                                                                                                                                                                                                                                 133
                                                                                                                                                                                                                                                                                                                                                 σ
4
                                                                                                                                                                                                                                                                                                                                                                                   ü
```

```
SEQUENCE ray...
STRAIN=K12 / MG1655;
STRAIN=K12 / MG1655;
MEDLINE=94316500; PubMed=8041620;
MEDLINE=94316500; PubMed=8041620;
Sofia H.J., Burland V., Daniels D.L., Plunke
"Analysis of the Escherichia coli genome. V.
"region from 76.0 to 81.5 minutes.";
region from 76.0 to 81.5 minutes.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Yeulner G., Gray J.A., Kirschman J.A., Lehner A.F., Sadosky Vlazny D.A., Zhang J., Zhao S., Hill C.W.; "Structure of the rhsA locus from Escherichia coli K-12 and comparison of rhsA with other members of the rhs multigene J. Bacteriol. 172:446-456(1990).
                                                                                                                                                                                                                 MEDLINE=97426617; PubMed=9278503;
Blattner F.R., Plunkett G. III, Bloch C.A
Riley M., Collado-Vides J., Glasmer J.D.,
Gregor J., Davis N.W., Kirkpatrick H.A.,
Mau B., Shao Y.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE=93259920, PubMed=8387990, Zhao S., Sandt C.H., Feulner G., Vlazny D.A., Gray J.A., Hill C.W., Zhao S., Sandt C.H., Feulner G., Vlazny D.A., Gray J.A., Hill C.W., "Rhs elements of Escherichia coli K-12: complex composites of shared and unique components that have different evolutionary histories.", J. Bacteriol. 175:2799-2808(1993).
                                                   This SWISS-PROT entry is copyright. It is produced through a collable between the Swiss Institute of Bioinformatics and the EMBL outset the European Bioinformatics Institute. There are no restrictions use by non-profit institutions as long as its content is in modified and this statement is not removed. Usage by and for contentities requires a license agreement (See http://www.isb-sib.ch/ar series and an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE=89123133; PubMed=2644231; Sadosky A.B., Davidson A., Lin R.J., "rhs gene family of Escherichia coli J. Bacteriol. 171:636-642(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NCBI_TaxID=562;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Bacteria; Proteobacteria; Gammaproteobacteria; Enterobacteriaceae; Escherichia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STRAIN=K12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Submitted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                              REVIEW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE=90094253; PubMed=2403547;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE OF 1-100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Science
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REVISION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             complete genome sequence
L02370;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OF 1221-1411 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (JAN-1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             011
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MG1655;
AAC61883.1;
AAB18457.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 d
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         N.A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ģ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Escherichia coli K-12.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Hill
K-12.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     C.A., Perna N.T.,
.D., Rode C.K., May
A., Goeden M.A., Ro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Plunkett G.
ome. V. DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .<u>.</u> .0
                                                                             http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Σ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Enterobacteriales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sadosky A.B.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mayhew G.F.
Rose D.J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Blattner F.R.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             얁
                                                                                                                                                                                a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          family.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ;
;
                                                                                                                                                               outstation
                                                                                              in no way
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 <
                                                                                                                                                                                                                                                                Š
                                                                                                                        8 8
```

```
S
                                                                                                                                                   밁
                                                                                                                                                                              8
                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                  S
                        片
                                                     S
                                                                                        밁
                                                                                                                                                                                                               片
                                                                                                                                                                                                                                                                                                                                                                                                 Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Signal; M
SIGNAL
CHAIN
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                              REPEAT
CONFLICT
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REPEAT
REPEAT
REPEAT
REPEAT
REPEAT
REPEAT
REPEAT
REPEAT
REPEAT
REPEAT
REPEAT
REPEAT
REPEAT
REPEAT
REPEAT
REPEAT
REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DOMAIN
REPEAT
REPEAT
REPEAT
REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REPEAT
REPEAT
REPEAT
REPEAT
REPEAT
REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   InterPro; IPR001826; RHS.
InterPro; IPR006530; YD.
Pfam; PF03527; RHS; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL; AE000424; AAC76507.1;
PIR; E65145; E65145.
EcoGene; EG10847; rhsB.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRINTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TIGRFAME;
                                                                                                                                                                                                                                                                                                                                                                                                                   Local
                                                                                                                                                      176
                                                                                                                                                                                                                 125
                                                                                                                                                                                                                                             134
 350
                                                                                                                       231
                                                                                                                                                                                                                                                                                                         109
                                                                                                                                                                                                                                                                             65
                                                                                                                                                                                                                                                                                                                                                                      57
                                                                                                                                                                                                                                                                                                                                                                                                   128;
                                                                                                                                                                                                                                                                                                                                        σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Multigene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PR00394; RHSPROTEIN.
s; TIGR01643; YD repe
                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                                                                         RLPRPLPAV----
                                                                                                                                                                                                                                                                                                                                       AAKPGLDTYSLGGG---
QGWLFQHQPQFWGPAQIRAV----LGAVPRGRLLVLDLFAESQPVYTRTASFQGQPFIWC
                             -----ARQQAISGGTE--------PSAFPDTLPGYTE--YGRDNGIRLSAVWL-
                                                         IIGSLFLRELIKEFGTDHIYGADTFNEMQPPSSEPSYLAAATTAVYEAMTAVDTEAVWLL
                                                                                                                     DOM-RSFGMTPVLPAFAGHVPEAVTRVFPQVNVTKMGSWGHFNCSYSCSFLLAPEDPIFP
                                                                                                                                                                                  LGLTQAEINEFFTGPAFLAWGRMGNLHTW--
                                                                                                                                                                                                               HLFPGEDGYS-----RSESLWLVRGGVAKLDEGHRLAALWQALPEELRLSPHRYLA
                                                                                                                                                                                                                                             NVC--TQSYSFVWWDWARWEREIDWMALNGINLALAWSGQEAIWQRV---
                                                                                                                                                                                                                                                                            ALPGPLPFILSRTYSSYRTKTPAPVGSLGPGWKMPADIRLQLRDNTLILSDNGGRSLYFE
                                                                                         TGLVDRFGRTQTFHR-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     439
461
482
                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                               AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          family;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2.8%;
20.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 159394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           repeat_2x;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Transmembrane; Repeat;
                                                                                                                                                                                                                                                                                                                                                                       GAARVRVRGSTGVAAA---AGL--HRYLRDFCGCHVAWSGSQL
                                                                                                                                                                                                                                                                                                                                                                                                   58;
                                                                                                                                                                                                                                                                                                                                                                                                                                                               M 0 28
                                                                                                                                                      WWLLG---
                                                                                                                                                                                                                                                                                                                                                                                                Pred. No. 8.6;
8; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                  Score 109.5;
Pred. No. 8.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1111111110
11211111110
11213
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
1131
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11313
11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RHSB PROTEIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             POTENTIAL
                                                                                           EAAGBFSGEITGVTDGAWRHFRLVLTTQAQRAEE-----
                                                                                                                                                                                                                                                                                                      ------PG------FTEAT-----PNRYRYYQ 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                V
                                                                                                                                                                                                                                                                                                                                                                                                                                                               K (IN REF. 4).
567AC4EE713D9E07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPROXIMATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           15
                                                                                                                                                      -WCERVPEADEVLPAPLPP
                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                   209;
                                                                                                                                                                                   ----DGPLPPSWHIKQLYLQHRVL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TANDEM REPEATS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Complete proteome
                                                                                                                                                                                                                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                  1411;
                                                                                                                                                                                                                                                                                                                                                                                                     219;
                                                                                                                                                                                                                                              ----- ҰЦА
                                                                                                                                                        ----YRVL
                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                           64
    405
                                                                                                                                                                                                                    175
                                                                                                                                                                                                                                                 181
                                                                                                                                                                                                                                                                                 124
                                                                                                                                                                                                                                                                                                                                                                         108
                                   296
                                                               349
                                                                                              258
                                                                                                                          289
                                                                                                                                                         209
                                                                                                                                                                                     230
```

δ 맑 S B Ş 뮍 Ś

```
RESULT 8
CATA_SALT
ID __CANA_T
AC __CANA_T
AC __CANA_T
DT __CANA_T
 EMBL;
                                                 This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                        McClelland M., Sanderson K.E., Spieth J., Clifton S.W., Latreille P., Couxtney L., Porwollik S., Ali J., Dante M., Du F., Hou S., Layman D., Leonard S., Nguyen C., Scott K., Holmes A., Grewal N., Mulvaney E., Evan E., Sun H., Florea L., Miller W., Stoneking T., Nhan M., Waterston R., Wilson R.K.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE=91117169; PubMed=2277629;
Loewen P.C., Stauffer G.V.;
"Nucleotide sequence of katG of Salmonella typhimurium characterization of its product, hydroperoxidase I.";
mol. Gen. Genet. 224:147-151(1990).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CATA_SALTY STANDARD; PRT; 726 AA. P17750; 01-AUG-1990 (Rel. 15, Created) 28-FEB-2003 (Rel. 41, Last sequence update) 15-SEP-2003 (Rel. 42, Last annotation update) Peroxidase/catalase HPI (EC 1.11.1.6) (Catalase peroxidase)
                                                                                                                                                                                                                                                                                                                                     Nature 413:852-856(2001).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STRAIN=LT2 / SGSC1412 / ATCC 700720;
MEDLINE=21534948; PubMed=11677609;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE=91117169;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Bacteria; Proteobacteria; Gammaproteobacteria;
Enterobacteriaceae; Salmonella.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Salmonella typhimurium.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (Hydroperoxidase I).
KATG OR STM4106.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SALTY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                   broad-spectrum peroxidase activities.

CATALYTIC ACTIVITY: 2 H(2)O(2) = O(2) + 2 H(2)O.

COPACTOR: Binds 2 protoheme IX and 2 iron ions per tetra
SUBUNIT: Homotetramer.

SIMILARITY: BELONGS TO THE PEROXIDASE FAMILY. BACTERIAL
PEROXIDASE/CATALASE SUBPAMILY.
                                                                                                                                                                                                      SIMILARITY: Contains 1 heme regulatory motif (HRM) repeat.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             406
                     X53001; CAA37187.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 297
   AE008891;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MLHNFGGNHGLFGALEA -- VNGGPEAARLFPNSTMVGTGMAPEGIS-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      QVRSFTYDDKYRGRMVAHRHTGRPEIRYRYDSDGRVTEQLNPAGLSYTYQYEKDRITITD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TAPD-GDITRYRYD 511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GAAWRLLLRSVYNCSGEAC----RGHNRSPLVRRP-SLQMNTSIWYNRSDVFEAWRLLLT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SLDRREVLHT-QGEAGLKRVVKKEHADGSVTQSQFDAVGRLRA--QTDAAGRTTEYSPDV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   --- ONEVVYSLMAELGWRK-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ----THDPEY--PENLPAAPLVRYGWTPRGELAV-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SAPSLATSPAFRYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -LITRITTPDGRASAFYYNHHNQLTSATGPDGLEL-----
   AAL22946.1;
                                                                                                                                                                                                                                                                                                                                                                                          sequence of Salmonella enterica serovar Typhimurium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    559
                                                                                                                                                                                                                                                                                                                                   exhibiting both
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ----DPVPDLAAWVTSFAARRYGVSHPDA
                                                                                                                                                                                                                                                                                                                                     þ
                                                                                                                                                                                                                                                                                                                                     catalase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Enterobacteriales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ----VYDRSGK-----
                                                                                                                                                                                                                                                                              per tetramer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LT2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -RREYDELGRLIQE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               331
                                 S
                                                                          밁
                                                                                                       8
                                                                                                                                                 뮍
                                                                                                                                                                                S
                                                                                                                                                                                                                     녃
                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                片
                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                       멍
                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local S
Matches 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           InterPro; IPR000763; Bac_ctase/pro
InterPro; IPR002016; Peroxidase.
Pfam; Pr00141; Peroxidase; 1.
PRINTS; PR00458; PEROXIDASE.
TIGRFAMS; TIGR00198; Cat_per HPI;
PROSITE; PS00435; PEROXIDASE_1; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CONFLICT
CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               METAL
REPEAT
CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Complete
ACT_SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           StyGene; SG10190; katG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PIR; S12039; CSEBHT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Oxidoreductase; Peroxidase;
     424
                                       518
                                                                            384
                                                                                                               467
                                                                                                                                                   326
                                                                                                                                                                                        431
                                                                                                                                                                                                                           286
                                                                                                                                                                                                                                                               379
                                                                                                                                                                                                                                                                                                                                     319
                                                                                                                                                                                                                                                                                                                                                                         216
                                                                                                                                                                                                                                                                                                                                                                                                              259
                                                                                                                                                                                                                                                                                                                                                                                                                                                   179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  134;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               P48534;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PS00436: DEFOXIDASE 1; 1.
                                                                                                                                                 SNYFFENLFXYEWV--QTRSPAGAIQFEAVDAPDIIPDPFDPSXKRKPTMLVTDLTLRFD
                                                                                                                                                                                                                                                           LVLDLFAESOPVYTRTASFOGOPFIWCMLHNFGGNHGLFGALEAVNGGPEAA------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LAWGRMGNLHTWDGPLPPSWHIKQLYLQHRVLDQMRSFGMTFVLPAFAGHVPEAVTRVFP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DYSALKGDLKALLTDSQPWW-----PADWGSYVGLFIRMAWHGAGTYRSIDGRGGAGR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PS00435; PEROXIDASE 1; 1.
PS00436; PEROXIDASE 2; 1.
PS50873; PEROXIDASE 4; 1.
     --GPEVPKEDLIWQD
                                       VRRPSLQMNTSIWYNRSDVFEAWRLLLTSAPSLATSPAFRYDLLDL-----TRQAVQEL
                                                                                                                                                                                                                         -----EAAPI-----EAQGLGWASSYGSG-----VGA-DAITSGLEVVWTQTPTQW
                                                                                                                                                                                                                                                                                                                                     PPSSEPSYLAAATTAVYEAMTAVDTEAVWLLQGWLFQHQPQFWGPAQIRAVLGAVPRGRL
                                                                                                                                                                                                                                                                                                                                                                            PLGATEMG-
                                                                                                                                                                                                                                                                                                                                                                                                                                                   FGFG-AGREDVWEPDLDVNWGDEKAWLTHR-------H-PEALAKA--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ------GQEAIWQRVYLALGLTQAEINEFFTGPAF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SAGAGTASRD------WWPNQLRV------DLLNQHSNRSNPLGEDFDYRKEFSKL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAGLHRYLRDFCGCHVAWSGSQLRLPRPLPAVPGELTEATPNR-----YRYYQNVCTQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         proteome.
                                                                                                             P-----VPDLAAWVTSFAARRYGVSHPDAGAAWRLLLRSVYNCSGEACRGHNRSPL
                                                                                                                                                                                                                                                                                                    ---SGEPLSAAAAIRATFGNMGMNDEETVALIAG---GHTLGKTHGAAAAASHVGADP----
                                                                                                                                                                                                                                                                                                                                                                                                              QVNVTKMGSWGHFNCSYSCSFLLAPEDPIFPIIGSLFLRELIKEFGTDHIYGADTFNEMQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GOORFAPLNSWPDNVSLDKARRLLWPIKOKYGOKISWADLFILAGNVALENSGFRT----
                                                                            PEFEKISRRFLNDPQÁFNEAFÁRAWFKLTHRDMGPKARYI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          726 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LAPX.
                                                                                                                                                                                        RLFPNSTMVGTGMAPEGISQNEVVYS----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          79656
                                                                                                                                                                                                                                                                                                                                                                          ---LIYVNPEGP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ctase/prase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MW.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                73;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WWDWARWEREIDWMALNGINLALAWS--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 108; DB Pred. No. 4.6; 73; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Iron; Heme; Hydrogen peroxide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            N N N N D N C N K O K
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HRM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BY SIMILARITY.
BY SIMILARITY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IRON (HEME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 , , ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      v
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       V
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               v
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ٧
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        7C4BA44439E9FFAB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            V
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ХX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ΗR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      42404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                YY (IN REF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (IN REF.
(IN REF.
(IN REF.
(IN REF.
(IN REF.
(IN REF.
(IN REF.
(IN REF.
(IN REF.
     PLPQPLYQPT-QEDIINLKAAIAASGLSISEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AXIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  196;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LIGAND)
```

Length 726; Indels

352;

Gaps

-----LMAELGWRKD

571

467

517 383 466 325 430 DH------

234

318 215

285

258

178

122

169

```
RESULT 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              뮸
                                   between the Swiss Institute of Bioinformatics the European Bioinformatics Institute. There use by non-profit institutions as long as modified and this statement is not removed. Usentitles requires a license agreement (See httorsend an email to license@isb-sib.ch).
                                                                                                                                                                                                                       Nucleic Acids Res. 21:5408-5417(1993).

-|- FUNCTION: Bifunctional, exhibiting both a broad-spectrum peroxidase activities.
-|- CATALYTIC ACTIVITY: 2 H(2)O(2) = O(2) + 2
-|- COFACTOR: Binds 2 protoheme IX and 2 iron
                                                                                                                                                                                                                                                                                    Daniels D.L.;
"Analysis of the Escherichia coli
"Egion from 89.2 to 92.8 minutes."
                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE=93347969; PubMed=8346018; Plunkett G. III, Burland V.D., Daniels D.L., Blattner F.R.; Plunkett G. III, Burland v.D., Daniels D.L., Blattner F.R.; Panalysis of the Escherichia coli genome. III. DNA sequence region from 87.2 to 89.2 minutes.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE OF 1-339 FROM N.A. STRAIN=K12 / MG1655;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A., AND PARTIAL SEQUENCE.
MEDLINE=88314956; PubMed=3045098;
Triggs-Raine B.L., Doble B.W., Mulvey M.R.,
"Nucleotide sequence of katG, encoding cata."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (Hydroperoxidase I). KATG OR B3942.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-JAN-1990 (Rel. 13, Created)
01-CT-1993 (Rel. 27, Last sequence update)
28-FEB-2003 (Rel. 41, Last annotation update)
Peroxidase/catalase HPI (EC 1.11.1.6) (Catalase-peroxidase)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CATA
                                                                                                   This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation -
                                                                                                                                                                                             ----
                                                                                                                                                                                                                                                                                                                                Blattner
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Enterobacteriaceae; Escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Bacteria; Proteobacteria; Gammaproteobacteria; Enterobacteriales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-JAN-1990
EMBL; M21516;
EMBL; L19201;
                                                                                                                                                                                                                                                                                                                                           MEDLINE=94089392; PubMed=8265357;
                                                                                                                                                                                                                                                                                                                                                         STRAIN=K12
                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE OF 309-726 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                 Nucleic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NCBI_TaxID=562;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Bacteriol. 170:4415-4419(1988)
                                                                                                                                                      INDUCTION: By hydrogen peroxide.

PTM: The N-terminus is blocked.

SIMILARITY: BELONGS TO THE PEROXIDASE FAMILY. BACTERIAL

PEROXIDASE/CATALASE SUBFAMILY.
                                                                                                                                      SIMILARITY: Contains 1 heme regulatory motif (HRM) repeat
                                                                                                                                                                                                             SUBUNIT: Homotetramer.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ECOLI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             572
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              578
                                                                                                                                                                                                                                                                                                                                                                                            Acids Res. 21:3391-3398(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VSV-----AWAS---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VSLYYEEARSAYLSKELASLLRAG
                                                                                                                                                                                                                                                                                                                             F.R., Burland V.D.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GFRNYRARLDVSTTESLLIDKAQQLTLTAPEMTVL 612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KTTNKASLADIIVLAGVVGIEQAAAAAGVSISVPFAPGRVDARQDQTDIEMFSLLEPIAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ASDSRFLLGS-----WLEQARAAA----
                                                                                                                                                                                                                                                                                                                                                      MG1655;
AAA24040.1; -.
AAB03074.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -ASTFRGGDKRGGANGARLALAPQRDWDVNAVAARVLPVLEEIQ 517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -NSRYQLTLWGPEGNIL
                                                                                                                                                                                                                                                                                                                                Plunkett G.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRT;
                                                                                                                                                                                                                                                                                                       genome.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              726
                                                 moved. Usage by and for commercial (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               catalase
                                                                          rmatics and the EMBL outst
There are no restrictions
ng as its content is in
                                                                                                                                                                                                                                                                                                                              III,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A
                                                                                                                                                                                                                                                                                                       Į۷.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sorby P.A.,
lase HPI of 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        656
                                                                                                                                                                                                                         H(2)0.
                                                                                                                                                                                                                                                               catalase
                                                                                                                                                                                                                                                                                                                              Sofia H.J.,
                                                                                                                                                                                                                                                                                                    DNA sequence
                                                                                                                                                                                                                                                                                                                                                                                                                        sequence
                                                                                                                                                                                                                         per tetramer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -GVLAYELLPALDEVL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ----VSEAEAD
                                                                                                                                                                                                                                                                                                       ō,
                                                                                                                                                                                                                                                                                                                                                                                                                          оf
f
                                                                                                                                                                                                                                                                                                                                                                                                                           the
                                                                             9
9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  577
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                           片
                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                               б
                                                                                                                δ
                                                                                                                                             묽
                                                                                                                                                                   S
                                                                                                                                                                                                 밁
                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                             片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                        片
                                                                                         밁
```

```
DR PTTTW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local S
Matches 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL; U00006; AAC43048.1; -.
EMBL; AE000468; AAC76924.1; -
PIR, A65201; CSECHP.
HSSP; P00431; ICYF.
SWISS-2DPAGE; P13029; COLI.
ECOGene; EG10511; katG.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REPEAT
CONFLICT
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Complete
ACT_SITE
ACT_SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       InterPro; IPR000763; Bac_ctase/prase.
InterPro; IPR002016; Peroxidase.
Pfam; PF00141; peroxidase; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TIGREAMS; TIGRO0198;
PROSITE; PS00435; PEF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRINTS; PRO0458;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Oxidoreductase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PROSITE;
 119
                                                                             424
                                                                                                                              384
                                                                                                                                                       467
                                                                                                                                                                                337
                                                                                                                                                                                                          418
                                                                                                                                                                                                                                                            377
                                                                                                                                                                                                                                                                                      235
                                                                                                                                                                                                                                                                                                             317
                                                                                                                                                                                                                                                                                                                                                                257
                                                                                                                                                                                                                                                                                                                                                                                         179
                                                                                                                                                                                                                                                                                                                                                                                                                   197
                                                                                                                                                                                                                                                                                                                                                                                                                                            121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  125;
                                                                                                                                                                                                                                                                                                                                       216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PS00435; PEROXIDASE_1; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             proteome.
ASDSRFLLGSWLEQARAAAVSEA 633
                                                                                                                                                                               AFLAWGRMGNLHTWDGFLFFSWHIKQLYLQHRVLDQWRSFGMTFVLPAFAGHVPEAVTRV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DYYGLKKDLKALLTESOP--WW-----PADWGSYAGLFIRMAWHGAGTYRSIDGRGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAGLHRYLRDFCGCHVAWSGSQLRLPRPLPAVPGELTEATPNR------YR-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PS50873;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PS00436;
                                                                             --GPEVPKEDLIWQD--
                                                                                                                                                                                                                                                            RLLVLDLFAESQPVYTR---
                                                                                                                                                                                                                                                                                                                                       --PLGATEMG---
                                                                                                                                                                                                                                                                                                                                                                                                                                           GRGQQRFAPLNSWPDNVSLDKARRLLWPIKQKYGQKISWADLFILAGNVALENSGFRT--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -YY-----QNVCTQSYSFVWWDWARWEREIDWMALNGINLALAWS--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SAGAGTTTRD------WWPNQLRV-----DLLNQHSNRSNPLGEDFDYRKEFSKL
                                                  VSLYYEEARSAYLSKELASLLRAG---
                                                                                                    VRRPSLOMNTSIWYNRSDVFEAWRLLLTSAPSLATSPAFRYDLLDL-----TROAVQEL
                                                                                                                             PEFEKI SRRFLNDPQAFNEAFARAWFKLTHRDMGPKSRYI
                                                                                                                                                   ----EAAPIEEQGLGWASTYGSGVGADAITSGLEVVWTQTPTQWSNYFFENLFKY
                                                                                                                                                                                                                                                                                                             MOPPSSEPSYLAAATTAVYEAMTAVDTEAVWLLOGWLFQHQPQFWGPAQIRAVLGAVPRG
                                                                                                                                                                                                                                                                                                                                                                FPQVNVTKMGSWGHFNCSYSCSFLLAPEDPIFPIIGSLFLRELIKEFGTDHIYGADTFNE
                                                                                                                                                                                                                                                                                                                                                                                         --FGFG-AGREDVWEPDLDVNWGDEKAWLTHR-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               102
106
267
15
                                                                                                                                                                                                                                                                                      --SGEPLSAAAAIRATFGNMGMNDEETVALIAGGHTLGKTHGAGPT---SNVGPDP--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ã,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Peroxidase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                peroXIDASE 2; 1; peroXIDASE 4; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PEROXIDASE
                                                                                                                                                                                                         GAL--EAVNGGPEAARLFPNSTMVGTGMAPEGISQNEVVYSLMAELGWRKD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    102 BY SIMILARITY.
106 BY SIMILARITY.
267 IRON (HEME AXIAL LIGAND).
20 HRM.
621 A -> G (IN REF. 1).
80023 MW; 24D32EBED5DE9BD6 CRC64;
                          AWAS---ASTFREGOKREGANGARLALMPORDWDVNAAAVRALPVLEKIO 517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2.7%;
18.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    66;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3 4; 1.
Iron; Heme; Hydrogen peroxide;
                                                                                                                                                                                                                                                                                                                                       ---LIYVNPEGP--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BY SIMILARITY.
BY SIMILARITY.
IRON (HEME AXIAL I
HRM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 104.5; | Pred. No. 8.2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                           -PLPOPIYNPT-EODIIDLKFAIADSGLSVSEL
                                                                                                                                                                                                                                                            -TASFQGQPFIWCMLHNFGGNH---GLF--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -GQEAIWQRVYLALGLTQAEINEFFTGP 196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     189;
                                                                                                                                                                                   - PFDPSKKRKPTMLVTDLTLRFD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length
                                                     ---GVLAYELLPALDEVL
                                                                                                                                                                                                                                                                                                                                                                                             ----H-PEALAKA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              726;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     303;
                                                                                                                                                                                                                                                                                                                                          .DH-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                           517
                                                                                                                                                                                                                                       336
                                                                                                                                                                                                                                                                417
                                                                                                                                                                                                                                                                                         285
                                                                                                                                                                                                                                                                                                                 376
                                                                                                                                                                                                                                                                                                                                                                    316
                                                                                                                                                                                                                                                                                                                                                                                             215
                                                                                                                                                                                                                                                                                                                                                                                                                      256
                                                                                                                                                                                                                                                                                                                                                                                                                                                178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     69
                                                       610
                                                                               467
                                                                                                          571
                                                                                                                                  423
                                                                                                                                                                                    383
                                                                                                                                                                                                              466
                                                                                                                                                                                                                                                                                                                                          234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      32
```

밁

518

KESGKASLADIIVLAGVVGVEKA 540

```
OFFERBERSONS SARKER RESERVATION ON ON ON ON ON OR SERVER S
                           Query Match
Best Local (
        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE-96214979; PubMed=8621382;

Inukai K., Anai M., Vanbreda E., Hosaka T., Katagiri H., Funaki M.,

Fukushima Y., Ogihara T., Yazaki Y., Kikuchi M., Oka Y., Asano T.,;

Pukushima Y., Ogihara T., Yazaki Y., Kikuchi M., Oka Y., Asano T.,;

"A novel 55-kDa regulatory subunit for phosphatidylinositol 3-kinase structurally similar to p55PIK Is generated by alternative splicing of the p85alpha gene.";

Of the p85alpha gene.";

J. Biol. Chem. 271:5317-5320(1996).

-i- FUNCTION: BINDS TO ACTIVATED (PHOSPHORYLATED) PROTEIN-TYROSINE KINASES, THROUGH ITS SH2 DOMAIN, AND ACTS AS AN ADAPTER, MEDIATING THE ASSOCIATION OF THE P110 CATALYTIC UNIT TO THE PLASMA MEMBRANE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             15-DEC-1998 (Rel. 37, Created)
15-DEC-1998 (Rel. 37, Last sequence update)
28-FEB-2003 (Rel. 41, Last annotation update)
Phosphatidylinositol 3-kinase regulatory beta
p85-beta subunit) (PtdIns-3-kinase p85-beta).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                P85B RA
Q63788;
                                                                                                        DOMAIN
DOMAIN
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              InterPro; IPR001720; PI3kinase_P85.
InterPro; IPR000198; RhoGAP.
InterPro; IPR000980; SH2.
InterPro; IPR001452; SH3.
Pfam; PF00620; RhoGAP; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                         SMART;
                                                                                                                                                                                                                                                                                                                                                                                          ProDom; PD000093; SH2; 2.
SMART; SM00324; RhoGAP; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                              Pfam; PF00017; SH2; 2.
Pfam; PF00018; SH3; 1.
PRINTS; PR00678; PI3KIN
PRINTS; PR00401; SH2DOW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL; D64046; BAA10926.1; -. HSSP; P23727; 2PNB.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Rattus norvegicus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SUBUNITS.

SIMILARITY: BELONGS TO THE PI3K P85 SUBUNIT SIMILARITY: Contains 1 Rho-GAP domain.

SIMILARITY: Contains 2 SH2 domains.

SIMILARITY: Contains 1 SH3 domain.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SUBUNIT: HETERODIMER OF A P110
. Similarity
87; Conserv
                                                                                                                                                                                                                                                                                                                                         SM00252; SH2; 2.
SM00326; SH3; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                           PRO0401; SH2DOMAIN.
                                                                                                                                                                                                                                                            PS50238; RHOGAP; 1.
PS50001; SH2; 2.
PS50002; SH3; 1.
                                                                                                        112
324
616
722 ;
                                                                                                                                                                                                                                         SH2
        Conservative
                                                                                                          ΑĄ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TISSUE=Brain;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STANDARD;
                                                                                                                                                                                                                                      domain; Repeat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PI3KINASEP85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (Rat).
                                                                                                                                   80
289
419
710
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Chordata;
Rodentia;
                                                                                                          81328
                              2.6%;
                                                                                                          MW.
        38;
                                                                                                     SH3.
RHO-GAP.
SH2 1.
SH2 2.
SH2 2.
W; 1208368B9F6F0C95 (
                              Score 103;
Pred. No. 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Craniata; Vertebrata; Euteleostomi;
Sciurognathi; Muridae; Murinae; Rattus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRT;
     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (CATALYTIC)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            722
                                                      DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            B
        134;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              subunit (PI3-kinase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ANU
                                                      Length 722;
                                                                                                          CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FAMILY
        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A P85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (REGULATORY)
        144;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             collaboration -
        Gaps
        19;
```

```
YMCA EACOLI 11
YMCA EACOLI ID YMCA EAC P75882
AC P75882

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-NOV-1997 (Re
01-NOV-1997 (Re
16-OCT-2001 (Re
Hypothetical li
YMCA OR B0984.
                                                                                                                    Yano M., Horiuchi T.;
"A 7.18-kb DNA sequence of the Escherichia corresponding to the 12.7-28.0 min region DNA Res. 3:137-155(1996).
-i- SUBCELLULAR LOCATION: Attached to the
                                                                                                                                                                                                                                    Oshima T., Aiba H., Baba T., Fujita K., Hayashi K., Honjo A., Ikemoto K., Inada T., Itoh T., Kajihara M., Kanai K., Kashimoto K., Kimura S., Kitagawa M., Makino K., Masuda S., Miki T., Mizobuchi K., Mori H., Motomura K., Nakamura Y., Nashimoto H., Nishio Y., Saito N. Sampei G., Seki Y., Tagami H., Takemoto K., Wada C., Yamamoto Y., Yano M., Horiuchi T.,
  This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             "The complete genome sequence Science 277:1453-1474(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE=97426617; PubMed=9278503;
Blattner F.R., Plunkett G. III, Bloch C.A., Pern Riley M., Collado-Vides J., Glasner J.D., Rode C Gregor J., Davis N.W., Kirkpatrick H.A., Goeden
                                                                                                                                                                                                                                                                                                                                                                                          WEDLINE=97061202;
                                                                                                                                                                                                                                                                                                                                                                                                                    STRAIN=K12
                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Bacteria; Proteobacteria; Gammaproteobacteria;
Enterobacteriaceae; Escherichia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              P75882;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        YMCA_ECOLI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            B., Shao Y.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       _TaxID=562;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         74
                                                                                                                                                                                                                                                                                                                                                                                                                                            FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VPRGRLLVLDLFAESQPVYTRTASFQGQPFIWCMLHNFGGNHG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SWGHFNCSYSCSFLLAPED-----PIFFIIGSLFLRELIKEFGTDHIYGADTFNE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EIDWMALNGINLALAWSGQEAIWQRVYLALGLTQAEINEFF-----TGPAFLAWGRMGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GHTLASLAEQFSPPESAPPILVKLIEAIEQAELDSEFYSRPELPAPRTDWSLSDLEQWDR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RTRORG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RVRVRGSTGVAAAAGLHRYLRDFCGCHV-----AWSGSQLRLPRPLPAVP-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TPDGTFLVRDASSKIQGEYTLTLRKGGNNKLIKVFHR-DGHYG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ALPP-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MQPPSSEPSYLAAATTAVYE-AMTAVDTEAVWLLQGWLFQHQPQFWGP---AQIRAVLGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LHTWDGFLPPSWHIKQLYLQHRVLDQMRSFGMTFVLPAFAGHVPEAVTRVFPQVNVTKMG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           7 (Rel. 35, Cre
7 (Rel. 35, Las
L (Rel. 40, Las
al lipoprotein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               coli.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MG1655;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  KPSKVKPAPTALANGGSTPSLQDAEW
                                                                                                STRONG,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               - PPTLPLHQALTLRFLLQHLGRVARRAPSPÄTÄVH---ÄLASAFGPL---
                                                                                                                                                                                                                                                                                                                                                                                             PubMed=8905232;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -LLRAPPPGGEGDGSEPAPDFPV---LLLERLVQE---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Last sequence update)
Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Created)
                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ymcA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATPNRYRYYONVCTQSYSEVWW---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -----DFPGTYVEFLGPVALARPGPRPRGPRPLPARPLDGPSSS
                                                                                                E.COLI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ġ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 precursor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Escherichia coli K-12.";
                                                                                                  YJBH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               - AAVVTPEAASÉAYRAMREVTGPVGLVLE----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           869
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           B
                                                                                                                                                                                             coli K-12 genome
on the linkage map.";
                                                                                                                                                 membrane
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Perna N.T., Burl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Enterobacteriales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   м.а.,
                                                                                                                                                 by a lipid anchor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -YWGDISREEVNERLRD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Rose D.J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Burland V.
yhew G.F.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DWA----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -HVDEQDTAPP
                            a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    <.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -RWER
                                                                                                                                                                                                                                                                                                z
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               210
```

as its content

<u>ب</u> for ä

commercia] ö

```
SPITT WWW.
                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                               멍
                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                 멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ß
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
 밁
                  8
                                             밁
                                                                 S
                                                                                             밁
                                                                                                                   Ş
                                                                                                                                               밁
                                                                                                                                                                S
                                                                                                                                                                                              문
                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                             맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local S
Matches 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           modified entities or send a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Complete
SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EcoGene; EG13729; ymcA.
PROSITE; PS00013; PROKAR_LIPOPROTEIN; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PIR; F64839;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Hypothetical protein; Membrane;
                                                                                                                                                                                                                                                                                                                                                                                                                        274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AE000200; AAC74069;
D90735; BAA35749:1;
D90736; BAA36124:1;
 597
                       704
                                                                      644
                                                                                               531
                                                                                                                       584
                                                                                                                                                476
                                                                                                                                                                      534
                                                                                                                                                                                               429
                                                                                                                                                                                                                       489
                                                                                                                                                                                                                                                379
                                                                                                                                                                                                                                                                        435
                                                                                                                                                                                                                                                                                               350
                                                                                                                                                                                                                                                                                                                        376
                                                                                                                                                                                                                                                                                                                                                294
                                                                                                                                                                                                                                                                                                                                                                         328
                                                                                                                                                                                                                                                                                                                                                                                                260
                                                                                                                                                                                                                                                                                                                                                                                                                                                 202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  146;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          non-profit institutions as long d and this statement is not removed. s requires a license agreement (See an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 proteome.
                                                                                                                                                                                                                                                                                                                                                                       AAAT----TAVYEAMTAV-----DTEAVWLLQGWLFQHQPQFWGPAQIRAVLGAVPR
                                                                                                                                                                                                                                                                                                                                                                                                                        SYSCSFLLAPEDPIFPIIGSLFLRELIKEFGTDHIYG---ADTFNEMOP---PSSEPSYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LRLPRELPAVPGE--LTEATENRYRYYQ-------NVCTQSYSFVWWDWA-
                       LEQAFVLSKQRYPSQPRGDTVDLAKKIFLKYYPGWVAGSW 743
                                                                                                                                                                     SDVFEAWRLLLTSAPSLATSPAFRYDLLDLTRQAV-----QELVSLYYEEARSAY
                                                                                                                                                                                                                                               TETDVASLRKQLAGTAP---GQSEPLQQQRVE
                                                                                                                                                                                                                                                                                               ANRILVNNI-----P------QGVEKI------
                                                                                                                                                                                                                                                                                                                                                PAPESEGLQYTTVANQLTALKYNAGFDAPEIQLRDKTLYMSGQQY----KYRDSREAVDR
                                                                                                                                                                                                                                                                                                                                                                                                -----XS
                                                                                                                                                                                                                                                                                                                                                                                                                                                 PASIFGGIEYQTPWNPLRLKLEYDGNNYQNDFAGKLPQA--SHFNVGAVYRAASWADLNL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ----FG----MTPVLPA----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        QAEINEFFTGPAFLAWGRMGNLHTWDGPLPPSWHIKQLYLQHRV----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DQSYKDKSFDFKLRLWEEGY-------WLPQVAFGKRDIAGTGLFDGEYLVASK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LQMPNARIAPEGEFSVNYRDNDQYRFYSTSVALFPWLEGTIRYTDVRTRKYS-QWEDFSG
                                                                     YQLTLWGPEGNILDYANKQLAGLVANYYTPRWRLFLEALVDSVAQGIPFQQHQFDKNVFQ
                                                                                               LETMYAGV-
                                                                                                                        LSKELASLLRAGGVLAYELLPALDEVLASDSRFLLGSWLEQARAAAVSEAEADFYEQNSR
                                                                                                                                                YDKFKSSLL----PADSTLPRVRTHIRDYVRNDVYLNNLQANYFADLGNGFYGQVYGGY
                                                                                                                                                                                                                      DAGAAWRLLLRSVYNCSGEACRGHNRSPLVRRPSLOMNTSIW------YNR
                                                                                                                                                                                                                                                                                                                       -GRILVIDLFAESOPVYTRTASFQGQPFIWCMLHNFGGNHGLFGALEAVNGGPEAARLFP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                QAGPFDFTLG---MAWGYAGNAGNITNPF---CRVSDKYC-HRAESHDAGDISFSDIFRG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 869
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              19
19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 F64839
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AA.
-LSVGQYLAKDKGATIDVAK----RFDSGVAVGVW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAC74069.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           18
698
19
78687
                                                                                                                                                                                                                                                                                                                                                                                               --------ergntlmfgftlrtnfndlrpalrdtpkpayq
                                                                                               -GSELLYRPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ---RWEREIDWMALNGINLALAWSGQEAIWQRVYLALGL------T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2.6%;
                                                                                                                                                                                                                                                                        -GMAPEGISQNEVVYSLMAELGWRKDPVPDLAAWVTSFAARRYGVSHP
                                                                                                                                                                                               FNPTLSQSLGGPEDFYMFQLGLMSSARYWFTDHLLLDGGIFTNIYNN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 75;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HYPOTHETICAL LIPOPE N-ACYL DIGLYCERIDE ; 37F71D2DC57FA4E7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 101; D
Pred. No. 14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Lipoprotein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FAGHVPEAVTRVFPQVNVTKMGSWGHFNC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LIPOPROTEIN YMCA
                                                                                                                                                                                                                                                ----AEDLSAFGRGYRIREDRFSYS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  239;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Usage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Signal;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 698,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (POTENTIAL)
CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                PTLNGVLMK----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    λÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     and
                                                                                                                                                                                                                                                                                               -SVTQKREHMAMVT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ----LDOMRS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  300;
                                                                                               -VDVNYVKORD-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                 475
                                                                                                                                                                                                                       533
                                                                                                                                                                                                                                               428
                                                                                                                                                                                                                                                                        488
                                                                                                                                                                                                                                                                                                378
                                                                                                                                                                                                                                                                                                                        434
                                                                                                                                                                                                                                                                                                                                                                       375
                                                                                                                                                                                                                                                                                                                                                                                                293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 101
                                                596
                                                                                               564
                                                                                                                        643
                                                                                                                                                                      583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          185
```

```
Pfam; PF00698; Acyl_transf; 2.
Pfam; PF00109; ketcacyl-synt; 2
Pfam; PF02801; ketcacyl-synt_C;
Pfam; PF00550; pp-binding; 2.
Pfam; PF00975; Thicesterase; 1.
PROSITE; PS00012; PHOSPHOPANTET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      OL56 STRAT
007017;
01-NOV-1997
01-NOV-1997
                 DOMAIN
ACT_SITE
ACT_SITE
NP_BIND
BINDING
BINDING
ACT_SITE
ACT_SITE
NP_BIND
NP_BIND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pfam; PF0
PROSITE;
PROSITE;
PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDILINE=94150470; PubMed=8107683;
Swan D.G., Rodriguez A.M., Vilches C., Mendez C., Salas J.A.;
Swan D.G., Rodriguez A.M., Vilches C., Mendez C., Salas J.A.;
"Characterisation of a Streptomyces antibioticus gene encoding a type
I polyketide synthase which has an unusual coding sequence.";
MOI. Gen. Genet. 242:358-362(1994).

-!- FUNCTION: MAY BE INVOLVED IN THE BIOSYNTHESIS OF THE OLEANDOMYCIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Bacteria; Actinobacteria;
Streptomycineae; Streptom
NCBI_TaxID=1890;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the Fithe European Bioinformatics Institute. There are no rest use by non-profit institutions as long as its content modified and this statement is not removed. Usage by are entities requires a license agreement (See http://www.isb-orsend an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Streptomyces
                                                                                                                                                                                                              DOMAIN
DOMAIN
DOMAIN
DOMAIN
DOMAIN
DOMAIN
DOMAIN
DOMAIN
DOMAIN
DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      InterPro;
InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HSSP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL; L09654; AAA19695.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    28-FEB-2003
                                                                                                                                                                                                                                                                                                                                                                                                        DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                          Phosphopantetheine; Multifunctional
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PIR; S43048;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             p; P25715; 1MLA.
serbro; IPR001227; Ac transferase.
erbro; IPR000794; Ketoacyl-synt.
erbro; IPR006163; Pp bind.
erbro; IPR006162; Ppantne_attach.
erbro; IPR00131; Thioesterase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COFACTOR: CONTAINS 2 COVALENTLY BOUND SIMILARITY: Contains 2 acyl carrier do
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LACTONE RING.
COFACTOR: CON
                                                                                                                                                                                                                                                                                                                                                                                                                                            PS00012; PHOSPHOPANTETHEINE; 2.
PS00606; B KETOACYL SYNTHASE; 2.
PS50075; ACP DOMAIN; 2.
PS50075; ACP DOMAIN; 2.
                                                                                                                                                                                                                                                    1200
1200
1487
1686
2220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (Rel. 35, Created)
(Rel. 35, Last sequence update)
(Rel. 41, Last annotation update)
n polyketide synthase, modules 5 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S43048.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   antibioticus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STANDARD;
  Ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Streptomycetaceae;
                                                              3519

501

890

1389

1561

2156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

22156

221
    368561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Actinobacteridae; Actinomycetales; ycetaceae; Streptomyces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ű
                                          PHOSPHOPANTETHEINE (BY SETA-KETOACYL SYNTHASE. ACYL-ESTER INTERMEDIATE, NADP.
                                                                                                                                                                                                                              BETA-KETOACYL SYNTHASE 2.
ACYLTRANSFERASE (AT) 2.
BETA-KETOACYL REDUCTASE 2.
  PHOSPHOPANTETHEINE (BY SIMILARITY)
W; 41AE78AAAEB61F86 CRC64;
                                                                                                                                                                                            ACYL CARRIER
THIOESTERASE
                                                                                                                                                                                                                                                                                                                 BETA-KETOACYL SYNTHASE 1.
ACYLTRANSFERASE (AT) 1.
BETA-KETOACYL REDUCTASE 1.
                                                                                                                                                                                                                                                                                                                                                                                  MODULE 5.
                                                                                                                                                 ACYL-ESTER
                                                                                                                                                                        BETA-KETOACYL
                                                                                                                                                                                                                                                                                                 ACYL CARRIER (ACP)
                                                                                                                                                                                                                  CARRIER
                                                                                                                                                                                                                                                                                                                                                                                                                          enzyme; Repeat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         domains
                                                                                                                                                    INTERMEDIATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                (ACP)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PHOSPHOPANTETHEINES
                                                                                                                                                                        SYNTHASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       through a c
                                                                                                         SIMILARITY)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      restrictions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
```

```
Query Match
Best Local S
Matches 122
                                                                                                                                                                                                                                                          CATA SALTI
Q8Z303;
15-SEP-2003
15-SEP-2003
15-SEP-2003
MEDLINE=21534947; PubMed=11677608; Parkhill J., Dougan G., James K.D., Thomson N.R., Pickard D., Wachtill J., Dougan G., James K.D., Holden M.T.G., Sebaihid Churcher C., Mungall K.L., Bentley S.D., Holden M.T.G., Sebaihid Baker S., Basham D., Brooks K., Chillingworth T., Connerton P., Cronin A., Davis P., Davies R.M., Dowd L., White N., Farrar J., Feltwell T., Hamlin N., Haque A., Hien T.T., Holroyd S., Jagels
                                                                                                                                                                                                                                           15-SEP-2003 (Rel. 42, Created)
15-SEP-2003 (Rel. 42, Last sequence update)
15-SEP-2003 (Rel. 42, Last annotation update)
Peroxidase/catalase HPI (EC 1.11.1.6) (Catalase-peroxidase)
                                                                                                SEQUENCE FROM N.A. STRAIN=CT18;
                                                                                                                                                               Bacteria; Proteobacteria; Gammaproteobacteria;
Enterobacteriaceae; Salmonella.
                                                                                                                                                                                               Salmonella typhi
                                                                                                                                                                                                                                                                                                                                                                                                          1159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1047
                                                                                                                                                                                                                ဝ္က
                                                                                                                                                                                                                                                                                                                                                                                                                                       510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 930
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                910
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            878
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         825
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  h 2.6%;
Similarity 19.3%;
22; Conservative (
                                                                                                                                                                                                                STY3760
                                                                                                                                                                                                                                                                                                                                                                                                                                          껃
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LGAVPR--GRLLVL-----DLFAESQPVYTRTASFQ-GQPFIWCMLHNFGGNHGLFG-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EPSYLAAATTAVYEA---MTAVDTEAV-----WLLQGWLFQHQPQF-WGPAQIRAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IAAACVAGGLSLA------DGARVVVLRSRAIARIAGGGGMVSVSLPAGRVRTMLEEFD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VAVAAAVGVLLLAGAGGAAGDEAREAAAVRALVARLLGPGPAADFSVSVERALAAKPGLD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RGAVVAG-PSDAGAVIDPV---QAQVWGF-GRVLGLEHPE---LWGGLIDLPVGVDEEVC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     QNEVVYSLMAELGWRKDPVPDLAAWVTSFAARRYGVSHPDAGAAWRLLLRSVYNCSGEAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LROALTGPENVDHLVSLLALDQATDDLAAAPSCLAASLVLAQALVDLGRVGEGPRLWLVT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TGALPEKPGNWLVVTPAGTDTTFÄES---LARTÄAAELGVSVSFAQVDTAHPDRSQYAHA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ENSFWSVVADADAEAAAELLGVDVEAVEAVMPALSSWHRQSQLRAEVNQWRYDVAWKRLT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                QRQHYW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LPAVPGELTEATPURYRYYQNVCTQSYSFVWWDW---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TYSLGGGGAARVRVRGSTGVAAAAGLHRYLRDFCGCH-----VAWSGSQLRLPRP
                                                                                                                                                                                                                                                                                                                                                                                                          RRFVGVVASAGFEDQVAVR-----GSGVWVRR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TKMGSWGHFNCSYSCSFLLAPEDPIFPIIGSLFLRELIKEFGTDHIYGADTFNEMQPPSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RMGNLHTWDGPLPPSWHIKQLYLQHRVLDQMRSFGMTPVLPAFAGHVPEAVTRVFPQVNV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GLVAQGMGAFVECSPHPVLVPGIEQTLDALDQNAAVFGSLRRDEGGLDRFLTS-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WMALNGINLALAWSGQ------EAIWQR--VYLALGLTQAEINEFFTGPAFLAWG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RDELLEALADITP-----QDSSVPFFSTVTADWLGTTALGAGYWFTNLRETVRFQEAVE
                                                                                                                                                                                                              se I).
) OR T3510.
                                                                                                                                                                                                                                                                                                                            STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GRLSVAAVNGPSSTVVSGDVQALDELLAGCEREGVRARRVPVDYASHSAQMDQL
                                                                                                                                                                                                                                                                                                                                                                                                                                       GHNRSPLVRRPSLOMNTSIWYNR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -LAEAFVQGVPVDWSR-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LMAEEAPV-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  63;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 101; DB 1;
Pred. No. 1.2e+02;
3; Mismatches 234
                                                                                                                                                                                                                                                                                                                            PRT;
                                                                                                                                                                                                                                                                                                                            726
                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                          1185
                                                                                                                                                                                                                                                                                                                                                                                                                                       533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AARLFPNSTMVGTGMAPEG----IS
                                                                                                                                                                                Enterobacteriales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 3519;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -AFEGVTPRTVD--LPTYPF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                  rd D., Wai
Sebaihia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  214;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -ARWEREID
                                                                  Wain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -SQPPHS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
        ...
                                                                   <u>ب</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1046
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                929
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    28
                                                                                                                                                                                                                                                                                                                                                                                         밁
                            S
                                                                   밁
                                                                                              5
                                                                                                                             문
                                                                                                                                                           $
                                                                                                                                                                                               밁
                                                                                                                                                                                                                      5
                                                                                                                                                                                                                                                          문
                                                                                                                                                                                                                                                                                        5
                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.

STRAIN=Ty2 / ATCC 700931;

MEDLINE=22531367; PubMed=12644504;

MEDLINE=22531367; PubMed=12644504;

Deng W., Liou S.-R., Plunkett G. III, Mayhew G.F., Rose D.J.,

Burland V., Kodoyianni V., Schwartz D.C., Blattner F.R.;

"Comparative genomics of Salmonella enterica serovar Typhi sti
and CTIB.";
                                                                                                                                                                                                                                                                                                                                                                                                        METĀL
REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                        ACT_SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Complete
ACT_SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          This SWISS-PROT entry is copyright. It is produced through a collab between the Swiss Institute of Bioinformatics and the EWBL outst the European Bioinformatics Institute. There are no restrictions use by non-profit institutions as long as its content is in modified and this statement is not removed. Usage by and for comentities requires a license agreement (See http://www.isb-sib.ch/anor send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     J. Bacteriol. 185:2330-2337(2003).

-- FUNCTION: Bifunctional, exhibiting both a catalase and broad-spectrum peroxidase activities (By similarity).

--- CATALYTIC ACTIVITY: 2 H(2)O(2) = O(2) + 2 H(2)O.

--- COFACTOR: Binds 2 protoheme IX and 2 iron ions per tet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Krogh A., Larsen T.S., Leather Quail M., Rutherford K., Simmor Whitehead S., Barrell B.G., "Complete genome sequence of a enterica serovar Typhi CT18.", Nature 413:848-852(2001).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pfam; PF00141; peroxidase; 1.
PRINTS; PR00458; PEROXIDASE.
TIGREAMS; TIGR00198; cat per HPI;
PROSITE; PS00435; PEROXIDASE 1; 1.
PROSITE; PS00436; PEROXIDASE 2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL; AL627279; CAD09515.1; -.
EMBL; AE016846; AAO/71018.1; -.
InterPro; IPR000763; Bac, ctase/p
InterPro; IPR002016; peroxidase.
                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         similarity).
SUBUNIT: Homotetramer (By similarity).
SUBUNIT: Homotetramer (By similarity).
SIMILARITY: BELONGS TO THE PEROXIDASE FAMILY. BACTERIAL
PEROXIDASE/CATALASE SUBFAMILY.
SIMILARITY: Contains 1 heme regulatory motif (HRM) repeat.
                                                                                                   199
          216
                                                                                                                                                                                                70
                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                            AAGLHRYLRDFCGCHVAWSGSQLRLPRPLPAVPGELTEATPNR-----YRYYQNVCTQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     proteome.
        PLGATEMG-
                                      QVNVTKMGSWGHFNCSYSCSFLLAPEDPIFPIIGSLFLRELIKEFGTDHIYGADTFNEMQ
                                                                     FGFG-
                                                                                                  LANGRMGNIHTWDGPLPPSWHIKQLYLQHRVLDQMRSEGMTPVLPAFAGHVPEAVTRVFP
                                                                                                                                  GQQRFAPLNSWPDNVSLDKARRLLWPIKQKYGQKISWADLFILAGNVALENSGFRT----
                                                                                                                                                                                                DYSALKGDLKALLTDSQPWW-----PADWGSYVGLFIRMAWHGAGTYRSIDGRGGAGR
                                                                                                                                                                                                                                                                                                                                                                                    15
726
                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                         AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Peroxidase;
                                                                                                                                                                                                                                                                                                                                                                                         102 B
106 B
267 I
20 H
. 79597 MW;
                                                                                                                                                                                                                                                                                                                                          2.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Leather S., Mov
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  _ctase/prase
                                                                                                                                                                                                                                                             -WWPNQLRV--
                                                                                                                                                                                                                            WWDWARWEREIDWMALNGINLALAWS--
                                                                                                                                                                                                                                                                                                                            73; Mismatches 197;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Iron; Heme;
                                                                                                                                                                                                                                                                                                                                                                                                                      BY SIMILARITY.
BY SIMILARITY.
IRON (HEME AXIA
                                                                                                                                                                                                                                                                                                                                          Score
Pred.
                                                                                                                                                                                                                                                                                                                                                                                                          装
                                                                                                                                                                                                                                                                                                                                                                                         B701C95343EEBB38 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  multiple
                                                                                                                                                                                                                                                                                                                                           100;
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Moule S.,
                                                                                                                                                                                                                                                             -----DLLNQHSNRSNPLGEDFDYRKEFSKL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              noved. Usage by and for commercial
(See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Skelton J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gurb
                                                                                                                                                                                                                                                                                                                                                                                                                         AXIAL LIGAND)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Hydrogen
                                                                                                                                                                GOEAIWORVYLALGLTOAEINEFFTGPAF
                                                                                                                                                                                                                                                                                                                                                            DB
                                                                                                                                                                                                                                                                                                                                                         ۳,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  O'Gaora P.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      serovar Typhi strains
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    resistant
                                                                                                                                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Stevens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            tetramer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Salmonella
           DH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Parry C.,
                                                                                                                                                                                                                                                                                                                            352;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ...
...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               a collaboration -
                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (By
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               00
00
00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ty2
```

178 198 169 69 δ 망 Ş

δ 밁 Ś Ď, 용 . 성

B, Ş 맑 Ş S

밁

멍 S 밁

뮍 Ş

```
RRESULT 14
ID ENV HV2D1
ID ENV H 775
AC 91775
AC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        吊
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ENV HV2D1
P17755;
01-AUG-1990
01-NOV-1991
15-JUL-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE=91045094; PubMed=2235509;
Kuehnel H., Kreutz R., Ruebsamen-Waigmann H.;
"Nucleotide sequence of HTV-2D194, an isolate from a Gambian
'neuro-AIDS', which showed excellent growth in macrophages,";
Nucleic Acids Res. 18:6142-6142(1990).
           the European Bioinformatics Institute. use by non-profit institutions as 10 modified and this statement is not remo
                                                                                                                                                                                                                 Kuehnel H., von Briesen H., Dietrich U., Adamski M., Mix D., Biesert L., Kreutz R., Immelmann A., Henco K., Meichsner C., Andreesen R., Gelderblom H., Rubbsamen Maigmann H.; "Molecular cloning of two west African human immunodeficiency viruspe 2 isolates that replicate well in macrophages a Gambian isolate, from a patient with neurologic acquired immunodeficiency syndrome, and a highly divergent Ghanian isolate."; Proc. Natl. Acad. Sci. U.S.A. 86(2383-2387(1989)).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Viruses; Retroid viruses; NCBI_TaxID=11713;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Human immunodeficiency virus type 2 (isolate D194)
Viruses; Retroid viruses; Retroviridae; Lentivirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Envelope
                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE=89184631;
Kuehnel H., von B:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE OF 1-266 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -NOV-1991 (Rel. 20, Last sequence update)
-JUL-1999 (Rel. 38, Last annotation update)
-Velope polyprotein GP160 precursor [Contains: Exterior membrane
ycoprotein (GP120); Transmembrane glycoprotein (GP41)].
                                                                                                                                                                    MISCELLANEOUS;
                   NEURO-ALL.

SWISS-PROT entry is copyright. It is year and the with the Swiss Institute of Bioinformatics and the with the Swiss Institute. There are no restricted as its content in the swiss institute.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        578
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             518
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           518
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       572
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GFRNYRARLDVSTTESLLIDKAQQLTLTAPEMTVL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VRRPSLQMNTSIWYNRSDVFEAWRLLLTSAPSLATSPAFRYDLLDL-----TRQAVQEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 --SGEPLSAAAAIRATFGNMGMNDEETVALIAG---GHTLGKTHGAAAASHVGADP----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PPSSEPSYLAAATTAVYEAMTAVDTEAVWLLQGWLFQHQPQFWGPAQIRAVLGAVPRGRL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FYEQ---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KTTNKASLADIIVLAGVVGIEQAAAAAGVSISVPFAPGRVDARQDQTDIEMFSLLEPIAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ASDSRFLLGS----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VSV-----AWAS---ASTFRGGDKRGGANGARLALAPQRDWEVNAVAARVLPVLEALQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VSLYYEEARSAYLSKELASLLRAG--------GVLAYELLPALDEVL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      --GPEVPKEDLIWQD--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SNYFFENLFKYEWV--QTRSPAGAIQFEAVDAPDIIPDPFDPSKKRKPTMLVTDLTLRFD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -----RLFPNSTMVGTGMAPEGISQNEVVYS-----------LMAELGWRKD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LVLDLFAESQPVYTRTASFQGQPFIWCMLHNFGGNHGLFGALEAVNGGPEAA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PEFEKISRRFLNDPQAFNEAFARAWFKLTHRDMGPKARYI------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (Rel. 15, Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ----VPDLAAWVTSFAARRYGVSHPDAGAAWRLLLRSVYNCSGEACRGHNRSPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -EAAPI----EAQGLGWASSYGSG----VGA-DAITSGLEVVWTQTPTQW
                                                                                                                                                                                                                                                                                                                                                                                                                                PubMed=2467304;
                                                                                                                                                                                              THIS
                                                                                                                                                                                              ISOLATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ---NSRYQLTLWGPEGNIL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----PIPOPLYOPT-QEDIINLKAAIAASGLSISEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -WLEQARAAA----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRT;
                                                                                                                                                                                              IS FROM A GAMBIAN
             as long a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        851
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        $
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        612
                                                                                      sed through a collaboration and the EMBL outstation -
                                                                                                                                                                                                CASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (HIV-2)
                                       restrictions
                                                                                                                                                                                                얶
                and
for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   саве
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -VSEAEAD
                                                                                                                                                                                                                                                                                                                              virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   e
E
                                       00 n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             577
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           571
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      378
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               430
```

```
Ś
                            밁
                                        S
                                                        밁
                                                                     Ś
                                                                                     밁
                                                                                                  á
                                                                                                                  밁
                                                                                                                              Ş
                                                                                                                                               밁
                                                                                                                                                            Ś
                                                                                                                                                                                                          Query Match
Best Local S
Matches 105
                                                                                                                                                                                                                       CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                                                                                           CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                 CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                     CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                    Signal
SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                         InterPro; IPR000328; Env GP41.
InterPro; IPR000777; GP120.
Pfam; PF00516; GP120; 1.
Pfam; PF00517; GP41; 1.
                                                                                                                                                                                                          SEQUENCE
                                                                                                                                                                                                                                                                                                                                                           CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                  CARBOHYL
                                                                                                                                                                                                                                                                                                                                                                          CARBOHYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                  AIDS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PIR; S12159; S12159
HIV; J04542; ENV$2D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL; J04542; AAA76847.1; -.
EMBL; X52223; CAA36471.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           entities requires a license agreement (some send an email to license@isb-sib.ch).
                                                                                                                                                                                                                 CARBOHYL
                                                                                                                                                                                                                                       CARBOHYD
                                                                                                                                                                                                                                                            CARBOHYD
                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                                 CARBOHYL
                                                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                 CARBOHYD
456
                             396
                                           475
                                                         349
                                                                        434
                                                                                      302
                                                                                                     379
                                                                                                                   247
                                                                                                                                 332
                                                                                                                                                187
                                                                                                                                                              292
                                                                                                                                                                            al Similarity
105; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Coat protein; Polyprotein; Glycoprotein;
NITES-AEVAELYRLELGD
                                                                                                   LV-LDLFA----ESQPVYTRTASFQGQPFIWCMLHNFGGNHGLFGALEAVNGGPEAARLF
                                                                                                                                                              GSLFLR----ELIKEFGTDHIYGADTFNEMQPPS-----SEPSY-----
             SIWYNRSDVFEAWRLLLTSAPSLATSPAFRYDLLDLTRQAVQELVSLYYEEA
                                                                                      VVPITLMSGRRFHSRPVYNKK---PGOAWCW----FQGNW----IEAMREVKQTLAKH
                                                                                                                  TRMMETQT
                                                                                                                                 TAVYEAMTAVDTEAVWL-LQGWLFQHQPQ-FWGPAQIRAVLG-----AVPRGRL
                                                                                                                                                GTCYMRHCNTSVIKESCDKHYWDAMKFRYCAPPGFALLRCNDTNYSGFEPKCSKVVAASC
                            VENKTNOTHONYAPCHIRQIINTWHKVGTNVYLPPREGELTCNSTVTSIIANIDSDGNQT
                                          VTSFAARRYGVSHP----DAGAAWRLLLRSVY--NCSGE-ACRGHNRSPLVRRPSLQMNT
                                                         PRYGGTNDTGKINFTKPGIGSDP
                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2D194
                                                                                                                                                                                                                 -NSTMVGTGMAPEGISQNEVVYS-----
                                                                                                                                                                                   2.5%;
                                                                                                                   -STWFGFNGTRAENRTYIYWHGKDNRTIISLNKYYNLTMHCKRPGNKT
                                                                                                                                                                                                          MW;
                                                                                                                                                                             68;
                                                                                                                                                                           Score 100; DB
Pred. No. 21;
58; Mismatches
                                                                                                                                                                                                                 N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                               N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                 N-LINKED
                                                                                                                                                                                                                                                                                                                                             N-LINKED
                                                                                                                                                                                                                                                                                                                                                           N-LINKED
                                                                                                                                                                                                                                                                                  N-LINKED
                                                                                                                                                                                                                                                                                          N-LINKED
                                                                                                                                                                                                                                                                                                                                     N-LINKED
                                                                                                                                                                                                                                                                                                                                                                          N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                     TRANSMEMBRANE
                                                                                                                                                                                                                                                                                                                                                                                                                            EXTERIOR
                                                                                                                                                                                                          3B002FCD0B9FF118
                                                                                                                                                                                                                                                                                                                                                                                                                              MEMBRANE
                                                                                                                                                                                                                  (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (See http://www.isb-sib.ch/announce/
                                                           EVTYMWTNCRGEFLYCNMTW
                                                                                                                                                                                                                                                      (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                (GLCNAC.
                                                                                                                                                                                                                                                                           (GLCNAC
                                                                                                                                                                                                                                                                                          (GLCNAC
                                                                                                                                                                                                                                                                                                               (GLCNAC
                                                                                                                                                                                                                                                                                                                                     (GLCNAC
                                                                                                                                                                                                                                                                                                                                                           (GLCNAC
                                                                                                                                                                                                                                 (GLCNAC.
                                                                                                                                                                                                                                       (GLCNAC
                                                                                                                                                                                                                                                (GLCNAC
                                                                                                                                                                                                                                                                     (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                         (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                               (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                     (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                          (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                  (GLCNAC
YKLIEVTPIPFAPTKEKRYSSAPVRNKRGV
                                                                                                                                                                                            B
                                                                                                                                                                             185;
                                                                                                                                                                                          ۲.
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Transmembrane;
                                                                                                                                                                                                                                                                                                                                                                                                                              GLYCOPROTEIN
                                                                                                                                                                                          Length 851;
                                                                                                                                                                                                           CRC64;
                                                                                                                                                                             Indels
                                                                       LMAELGWRKDPVPDLAAW
                                                                                                                                                                                                                                                                                                                                            (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                                                        (POTENTIAL)
(POTENTIAL)
                                                                                                                                                                                                                                                                            (POTENTIAL)
(POTENTIAL)
(POTENTIAL)
(POTENTIAL)
(POTENTIAL)
                                                                                                                                                                                                                                        (POTENTIAL)
(POTENTIAL)
(POTENTIAL)
                                                                                                                                                                                                                  (POTENTIAL
                                                                                                                                                                                                                                                                     POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                               POTENTIAL)
                                                                                                                                                                             160;
                                                           --- FLNW
                                                                                                                                                                             Gaps
                                                                                                                                                                LAAAT
               RSA
                                                                                       348
                                                                         474
                                                                                                       433
                                                                                                                                   378
                                                                                                                                                 246
                                                                                                                                                                331
  503
               582
                              455
                                                           395
                                                                                                                     301
                                                                                                                                                                              29;
```

```
RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     D)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q03391;
01-JUN-1994
15-JUL-1999
28-FEB-2003
                                                                                                                                                                                                                                                                                                                                                                                                   Ikeda K., Nagasawa M., Mori H., Araki K., Sakimura K., Watanabe M., Ilnoue Y., Mishina M.;
Submitted (MAY-1998) to the EMBL/GenBank/DDBJ databases.
-!- FUNCTION: NMDA RECEPTOR SUBTYPE OF GLUTAMATE-GATED ION CHANNELS
POSSESSES HIGH CALCIUM PERMEABILITY AND VOLTAGE-DEPENDENT
SERSITIVITY TO MAGNESIUM AND IS MEDIATED BY GLYCINE.
-!- SUBUNIT; HETERODIMER OF AN EPSILON SUBUNIT AND A ZETA SUBUNIT.
-!- SUBCELLULAR LOCATION: Integral membrane protein.
-!- SUBCELLULAR LOCATION: Integral membrane protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-JUN-1994 (Rel. 29, Createu)
01-JUL-1999 (Rel. 38, Last sequence update)
28-FEB-2003 (Rel. 41, Last annotation update)
Glutamate [NMDA] receptor subunit epsilon 4 p
                                                                                                      InterPro; IPR001828; ANF receptor.
InterPro; IPR001320; Non glu receptor.
InterPro; IPR001320; Non receptor.
InterPro; IPR001311; SBP/glu receptor.
InterPro; IPR001311; SBP/glu receptor.
Pfam; PF00104; ANF receptor; 1.
Pfam; PF001077; NMDARECEPTOR.
                                                                                                                                                                                                                                                                           This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE=93050214; PubMed=1385220;
Ikeda K., Nagasawa M., Mori H., Araki K.,
Inoue Y., Mishina M.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryota; Metazoa;
Mammalia; Eutheria;
 DOMAIN
                                                                                          PRINTS; PR00177; NMDAREC
SMART; SM00079; PBPe; 1.
                                                                                                                                                                                                                   MGD; MGI:95823; Grin2d
                                                                                                                                                                                                                                EMBL; D12822; BAA02254.1; -. HSSP; P19491; 1GR2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REVISIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEBS Lett. 313:34-38(1992)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         "Cloning and expression of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mus musculus (Mouse)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NME4_MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SSUE=Brain;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 583
                                                           channel;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMLRLTVWGTKNLQARVTAIEKYLKDQAQLNSWGCAFRQVCHTTVPWVNDSLTPDWNNWT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FVLGFLGFLATAGSAMGGASL----TLSAQSRTLLAGIVQQ-----QQQLLDVVKRQQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              YLSKELASLLRAGGVLAYELLPALDEVLASDSRFLLGSWLEQARAAAVSEAEADFYE-QN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WQEWEKRVHYLEA---NISOSLEQAQIQQEKNMYELQK 647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -----:FLEALVDSVAQGIPFQQHQFDKNVFQLEQ
                                                                          Signal; Transmembrane; Postsynaptic
 28
                                                 Magnesium.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STANDARD;
                               1323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Chordata;
Rodentia;
 580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            the epsilon 4 subunit of the
POTENTIAL.

GLUTAMATE [NMDA] RECEPTOR SUBUNIT EPSILON 4.

EXTRACELLULAR (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EGNILDYANKQLAGL------VANYYTPRWR---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Craniata; Vertebrata; Euteleostomi; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 on 4 precursor (NMDAR2D).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sakimura K.,
                                                                          membrane; Calcium,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (N-methyl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Watanabe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NMDA receptor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .
.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                641
```

```
Ś
                                     문
                                                     Ş
                                                                                          5
                                                                                                                  F
                                                                                                                                  Ś
                                                                                                                                                        片
                                                                                                                                                                         Ś
                                                                                                                                                                                              片
                                                                                                                                                                                                             S
                                                                                                                                                                                                                                    문
                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                       片
                                                                                                                                                                                                                                                                                                               Query Match
Best Local Sim
Matches 106;
                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                       CARBOHYD
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                        DOMAIN
DOMAIN
DOMAIN
SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                               TRANSMEM
DOMAIN
TRANSMEM
DOMAIN
TRANSMEM
TRANSMEM
DOMAIN
TRANSMEM
DOMAIN
DOMAIN
DOMAIN
                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                     373
                                                                                                                                                         176
                                                                                                                                                                                               144
369
                   533
                                      328
                                                         480
                                                                            291
                                                                                                422
                                                                                                                                                                                                                                                                                             162 INLALAWSGQEAIWQRVYLALGLTQAEINEFFTGFAFLAWGRMGNLH-----TWDGFLF
                                                                                                                                                                                                                                     94
                                                                                                                                                                                                                                                                           48
                                                                                                                                                                                                                                                                                                                          Similarity
RDYSFNEDGFLVN--PSLV---
                RSDVFEAWRILLISAPSLATSPAFRYDLLDLTRQAVQELVSLYYEE 578
                                       AQALLRDYGFL-PEL
                                                                            LPGGAPLPAGLF----
                                                                                                AVNGGPEAARLFPNSTMVGTGMAPEGISQNEVVYSLMAELGWRKDPVPDLAAWVTSFA--
                                                                                                                                    VPRG-----RILVIDLEAESOPVY--TRTASFOGOPFIWCMLH---NEGGNHGLEG-ALE
                                                                                                                                                        LEEYDWTSFVAVTTRAPGHRAFLSYIEVLTDG--SLVGW--EHRGALTLDPGAGEAVLGA
                                                                                                                                                                                                                KMGSWGHFNCSYSCSFLLAPEDPIFPIIGSLFLRELIKEFGTDHIYGADTFNEMQ-----
                                                                                                                                                                                                                                     ----RSIVLOLCDLLSGLRVHGVVFEDDSRAPAVAPILDFLSAQTSLPIVAVHG-----
                                                                                                                                                                                                                                                       PSWHIKQLYLQ------HRVL--DQMRSFGMTPVLPAFAGHVPEAVTRVFPQVNVT
                                                                                                                                                                                                                                                                          LNVALVFSGP-----AYAAEAARL----GPAVAAAVRSPGLDVRPVALVLNGSDP
                                                                                                                  QLRSVSAQIRLLFC-AREEAEPVFRAAEEAGLTGPGYVWFMVGPQLAGGGGSGVPGEPLL
                                                         ----ARRYGVSHPDAGAAWRLLLRSVYNCSGEACRGHNRSPLVRRPSLQ----MNTSIWYN
                                                                                                                                                                          -PPSSEPSYLAAATTA----VYEAMTAVDTEAVWLLQGWLFQHQPQF-WGPAQIRAVLGA
                                                                                                                                                                                                                                                                                                                                                                                                                         905
1030
1197
639
                                                                                                                                                                                                                                                                                                                                                       349
363
464
1323
                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                      AA;
                                                                                                                                                                                               -----GAALVLTPKEK-----GSTFLQ-
                                                                                                                                                                                                                                                                                                                                                                                                                        263
263
243
                                                                                                                                                                                                                                                                                                                         2.5%;
                                                                                                                                                                                                                                                                                                                                                       142907
                                                                                                                                                                                                                                                                                                                46;
                                                                                                                                                                                                                                                                                                                                                      ΜW.
                                                                                                                                                                                                                                                                                                                                                                       N-LINKED
N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                Pred. No. 39;
5; Mismatches
                                                                                                                                                                                                                                                                                                                           Pred. No. 39
                                                                                                                                                                                                                                                                                                                                                                                                       POLY-PRO.
FUNCTIONAL DETERMINANT OF NMDA PECEPTORS (BY SIMILARITY).
(POTENT
                                                                                                                                                                                                                                                                                                                                                              N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2 (POTENTIAL).
EXTRACELLULAR (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CYTOPLASMIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CYTOPLASMIC
                                                                                                                                                                                                                                                                                                                                                                                                                                             POLY-ALA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EXTRACELLULAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                       8AE9878F90DD0921
 ---VISLTRDRTWEVVGSWEQQ
                                                                                                                                                                                                                                                                                                                                                              (GLCNAC...)
(GLCNAC...)
(GLCNAC...)
(GLCNAC...)
(GLCNAC...)
                                      GHDCRAQNRTH - - RGESLHRYFMNIT-WDN
                                                                            -----AVRSAGWRDDLARRVAAGVAVVARG
                                                                                                                                                                                                                                                                                                                                   DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (POTENTIAL)
                                                                                                                                                                                                                                                                                                                  156;
                                                                                                                                                                                             -----LGSSTEQQLQVIFEV
                                                                                                                                                                                                                                                                                                                                 Length 1323;
                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                       CRC64;
                                                                                                                                                                                                                                                                                                                                                                                   (POTENTIAL)
(POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                          (POTENTIAL)
 40,
                                                                                                                                                                                                                                                                                                                  158;
                                                                                                                                                                                                                                                                                                                Gaps
                                        368
                                                                             327
                                                                                                479
                                                                                                                    290
                                                                                                                                      421
                                                                                                                                                          231
                                                                                                                                                                             372
                                                                                                                                                                                                175
                                                                                                                                                                                                                                     143
                                                                                                                                                                                                                                                        263
                                                                                                                                                                                                                                                                            93
```

Search completed: February 13, 2004, 16:15:50 Job time : 26 secs

```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Title:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Perfect score:
                                                                                                                                                                                                                                              Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
 3306
3302
2613.5
2611.5
2611.5
144.5
1433.5
1027.5
1027.5
1027.5
1027.5
1027.5
                                                                                                                                                                                           Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                    SPTREMBL 23:*
1: sp_archea:*
2: sp_bacteria:*
3: sp_fungi:*
                                                                                                                                                                                         Query
Match Length DB
                                                                                                                                                                                                                                                                                            BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            February 13, 2004, 15:59:34; Search time 61 Seconds (without alignments) 3143.165 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-09-836-613-2
3939
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            830525 segs, 258052604 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 MEAVAVAAAVGVLLLAGAGG......VDLAKKIFLKYYPGWVAGSW 743
                       GenCore version 5.1.6
Copyright (c) 1993 - 2004 Compugen Ltd.
                                                                                                                                                                                                                                                                                          sp_unclassified:*
sp_rvirus:*
sp_bacteriap:*
sp_archeap:*
                                                                                                                                                                                                                                                                                                                                                                                sp_organelle:*
sp_phage:*
                                                                                                                                                                                                                                                                                                                                                                                                       sp_mhc:*
                                                                                                                                                                                                                                                                                                                                                                                                                                          sp_human:*
                                                                                                                                                                                                                                                                                                                                                                                                                    sp_mammal:*
                                                                                                                                                                                                                                                                                                                                       sp_vertebrate: *
                                                                                                                                                                                                                                                                                                                                                 sp_rodent:*
                                                                                                                                                                                                                                                                                                                                                                      sp_plant:*
                                                                                                                                                                                                                                                                                                                                                                                                                              invertebrate:*
                                 798
2104
1862
                                                                  806
811
778
770
715
                                                                                                                         639
739
739
753
753
                                                                             16
                                                                                                   10
014769
08325
1 088325
2 090276
3 0990276
3 095845
5 09VLL5
6 09NAP6
6 09NAP6
6 09NAP6
6 08XM24
6 093TW7
093TW7
095BV4
2 065553
                                                                                                                                                                                          ╏
                                                                                                                                                                                                                           SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        830525
         Qsaq6 caulobacter
Qsnap6 caenorhabdi
Qsph7 canthomonas
Qsxm24 clostridium
Qstw7 stigmatella
Qs6w3 glbberella
Q96w3 glbberella
                                                                                     Q14769 homo sapien
O54752 mus musculu
O88325 mus musculu
Q90276 dromaius no
Q90275 dromaius no
Q90475 dromaius no
Q9fna3 arabidopsis
Q92745 nicotiana t
Q9v115 drosophila
                                                                                                                                                                                          Description
```

	45	44	43	42	41	40	39	38	37	36	ω 5	34	ü	32	31			28										18	
	\rightarrow	110.5	111	111	111.5	111.5	111.5	112	112	112.5	112.5	113	113	113.5	113.5	114	114.5	115	115	115.5	115.5	116	117	117.5	118	120	121	121	121
		٠		2 8	٠		٠	2.8	•		• .	•	•	•	2.9			2.9	•	•	٠	•		٠	•	•		٠	
	614	582	10917	1027	2205	689	484	768	596	839	380	7257	1281	2164	1090	479	2338	7257	725	1319	973	1799	1374	1490	2785	3729	4472	4342	2116
	N	N	N	16	12	10	10	w	N	16	16	N	16	N	16	N	16	N	16	4	16	N	17	17	17	N	N	16	N
i	09L8K3	Q9L7A1	Q93NW6	Q9AAQ1	Q99FK2	Q9AWX9	Q9FFZ1	Q8J2T4	Q9RBJ7	Q8P3W4	Q8PLD5	Q9L8C7	Q912I1	Q93N86	Q8P6S5	086001	Q8XT19	Q9KIZ7	Q9A722	Q9HCD3	086728	Q8KPW5	Q9YCP5	Q8PWI4	68XZ89	033956	033954	Q9I157	Q93N89
		Q917a1 streptomyce				Q9awx9 oryza sativ	Q9ffz1 arabidopsis	Q8j2t4 grifola fro	anthomo	Q8p3w4 xanthomonas	Q8pld5 xanthomonas	Q918c7 polyangium	Q9i2i1 pseudomonas	Q93n86 streptomyce	Q8p6s5 xanthomonas	O86001 sphingomona	9	Q9kiz7 polyangium	Q9a722 caulobacter		O86728 streptomyce	streptomyce	Q9ycp5 aeropyrum p	Q8pwi4 methanosarc	w	m	w	Q9i157 pseudomonas	m

ALIGNMENTS

																									•
Ş	8	Ś	Дb	8	M B Q	SQ	DR E	걸	RJ.	R R	RA	2	RP	d 5	20	8	လ္ထ	S S	E I	3 1	ij	AC	D G	RESULT	
245 FAGHVPEAVTRVFPQVNVTXWGSWGHFNCSYSCSFLLAPEDPIFPIIGSLFLRELIKEFG 304	81 TQAEINEFFTGPAFLAWGRMGNLHTWDGPLPPSWHIKQLYLQHRVLDQWRSFGMTPVLPA 140	185 TQAEINEFFTGPAFLAWGRWGNLHTWDGPLPPSWHIKQLYLQHRVLDQWRSFGWTPVLPA 244	21 TARRYRYYQNVCTQSYSFVWWDWARWEREIDWWALNGINLALAWSGQEAIWQRVYLALGL 80	125 TPNRYRYYQNVCTQSYSFVWWDWARWEREIDWMALNGINLALAWSGQEAIWQRVYLALGL 184	Query Match 83.9%; Score 3306; DB 4; Length 639; Best Local Similarity 99.7%; Pred. No. 3.5e-233; Matches 617; Conservative 0; Mismatches 2; Indels 0; Gaps 0;	SEQUENCE 639 AA; 72027 MW; 21B47A14A2E978E6 CRC64;	EMBL; L78465; AAB36605.1;	Cenome 7:686-690(1996)	candidate gene for alpha-N-acetylglucosaminic	"Molecular dissection of a cosmid from a gene-rich region in 17g21 and	Zhao Z., Yazdani A., Shen Y., Sun Z., Bailey J., Caskey C.T.,	MEDLINE=96359157; PubMed=8703123;	SEQUENCE FROM N.A.	[1] - (AXID=9006)	Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.	; Metazoa; Chordata; Craniata; V	Homo sapiens (Human).	UFHSD2.	tylglucosaminidase.	01-NOV-1998 (Trambire) OB Last apportation undate)	(TrEMBLrel. 01, Created)	7	Q14769 PRELIMINARY; PRT; 639 AA.	III 1	

δ 밁 Ś 밁

```
054752
054752;
054752;
01-JUN-1998 (TrEMBLrel. 06
I 01-JUN-1998 (TrEMBLrel. 06
JT 01-MAR-2003 (TrEMBLrel. 2
JT 01-MAR-2003 (TrEMBLrel. 2
                                                                                                                                                   Query Match
Best Local Sim
Matches 611;
                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
STRAIN-B6/CBAFIJ; TISSUE-Liver;
STRAIN-B6/CBAFIJ; TISSUE-Liver;
STRAIN-B6/CBAFIJ; TISSUE-Liver;
STRAIN-B6/CBAFIJ; TISSUE-Liver;
Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-Strain-St
                                                                                                                                                                                                                              InterPro; IPR002086; Aldehyde dehydr.
PROSITE; PS00070; ALDEHYDE_DEHYDR_CYS;
Glycosidase; Hydrolase.
SEQUENCE 739 AA; 82610 MW; B414C336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mús musculus (Mouse).
Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                               NCBI_TaxID=10090;
[1]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                N
                                                                                                                                                       Match
Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              725
  59
                                    61
                                                                                                                سر
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEAVAVAAAVGVIILLAGAGGAAGDEAREAAAVRALVARILGPGPAADFSVSVERALAAKP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GLVANYYTPRWRLFLEALVDSVAQGIPFQQHQFDKNVFQLEQAFVLSKQRYPSQPRGDTV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ALDEVLASDSRFLLGSWLEQARAAAVSEAEADFYEQNSRYQLTLWGPEGNILDYANKQLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ALDEVLASDSRFLLGSWLEQARAAAVSEAEADFYEQNSRYQLTLWGPEGNILDYANXQLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TSAPSLATSPAFRYDLLDLTRQAVQELVSLYYEBARSAYLSKELASILRAGGVLAYELLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VSHPDAGAAWRLLLRSVYNCSGEACRGHNRSPLVRRPSLQMNTSIWYNRSDVFEAWRLLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGPEAARLFPNSTMVGTGMAPEGISQNEVVYSLMAELGWRKDPVPDLAAWVTSFAARRYG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              QIRAVLGAVPRGRLLVLDLFAESQPVYTRTASFQGQPFIWCMLHNFGGNHGLFGALEAVN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TDHIYGADTFNEMQPPSSEPSYLAAATTAVYEAMTAVDTEAVWLLQGWLFQHQPQFWGPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TDHIYGADTFNEMQPPSSEPSYLAAATTAVYEAMTAVDTEAVWLLQGWLFQHQPQFWGPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FAGHVPEAVTRVFPQVNVTKMGSWGHFNCSYSCSFLLAPEDPIFPIIGSLFLRELIKEFG
  GLDTYSLSGGGGVPVLVRGSTGVAAAAGLHRYLRDFCGCQVAWSSAQLHLPWPLPAVPDG
                                  GLDTYSLGGGGAARVRVRGSTGVAAAAGLHRYLRDFCGCHVAWSGSQLRLFRFLFAVFGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GLVANYYTPRWRLFLEALVDSVAQGIPFQQHQFDKNVFQLEQAFVLSKQRYPSQPRGDTV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TSAPSLATSPAFRYDLLDLTROAVQELVSLYYEEARSAYLSKELASLLRAGGVLAYELLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGPEAARLFPNSTMVGTGMAPEGISQNEVVYSLMAELGWRKDPVPDLAAWVTSFAARRYG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QIRAVLGAVPRGRLLVLDLFAESQPVYTRTASFQGQPFIWCMLHNFGGNHGLFGALEAVN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VSHPDAGAAWRLLLRSVYNCSGEACRGHNRSPLVRRPSLQMNTSIWYNRSDVFEAWRLLL
                                                                                                                                                     Conservative
                                                                                                                                                                     83.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                23,
                                                                         aggsvgdeareakavrelvvrligpgpaanflusveralades
                                                                                                                                                     53;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Last sequence update)
Last annotation updat
                                                                                                                                                 Score 3305; DB 11;
Pred. No. 5.2e-233;
3; Mismatches 70;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Craniata; Vertebrata; Euteleostomi;
Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                B414C336A04EF0EF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              739
                                                                                                                                                                                                                                                                                                                                                                                 encoding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                update)
                                                                                                                                                                                                                                                                                                                                                 databases
                                                                                                                                                                                                                                                                                                                                                                                    the lysosomal alpha-N-
                                                                                                                                                                                                                                CRC64;
                                                                                                                                                     Indels
                                                                                                                                                                                       Length
                                                                                                                                                                                            739;
                                                                                                                                                     2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mus.
                                                                                                                                                     Gaps
                                                                           88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        364
                                                                                                                60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          724
  닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                   STRIN=129sv;

MEDLINE=20056274; PubMed=10588735;

Li H.H., Yu W.H., Rozengurt N., Zhao H.Z., Lyons K.M.,

Anagnostaras S., Fanselow M.S., Suzuki K., Vanier M.T., Neufeld E

"Mouse model of Sanfilippo syndrome type B produced by targeted
disruption of the gene encoding alpha-N-acetylglucosaminidase.";

Proc. Natl. Acad. Sci. U.S.A. 96:14505-14510(1999).
                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
STRAIN=129/SVEVTACTBr; TISSUE=Spleen;
Gloeckner C.J., Breitling R., Moeller G.,
"Characterization of HSD17B1 gene in mice
                                                                                                                                                                                                                                                                                     Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                 Alpha-N-acetylglucosaminidase. NAGLU.
                                                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                       NCBI_TaxID=10090;
[1]
                                                                                                                                                                                                                                                                                                                              Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RLLITSAPSLATSPAFRYDLIDLTRQAVQELVSLYYEEARSAYLSKELASLLRAGGVLAY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KQLAGLVADYYQPRWCLFLGTLAHSLARGVPFQQHEFEKNVFPLEQAFVYNKKRYPSQPR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KQLAGLVANYYTERWRLFLEALVDSVAQGIPFQQHQFDKNVFQLEQAFVLSKQRYPSQPR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BLIPALDEVLASDSRFLLGSWLEQARAAAVSEAEADFYEQNSRYQLTLWGPEGNILDYAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RRYGVSHPDAGAAMRLLLRSVYNCSGEACRGHNRSPLVRRPSLQMNTSIWYNRSDVFEAW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EAVNGGPEAARLFÉNSTMVGTGMAPEGISQNEVVYSLMAELGWRKDPVPDLAAWVTSFAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KEFGTDHIYGADIFNEMQPPSSEPSYLAAATTAVYEAMTAVDTEAVWLLQGWLFQHQPQF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VLPAFAGHVPKAITRVFPQVNVIKLGSWGHFNCSYSCSFLLAPGDPMFPLIGNLFLRELT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VLPAFAGHVPEAVTRVFPQVNVTKMGSWGHFNCSYSCSFLLAPEDPIFPIIGSLFLRELI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LTEATPNRYRYYQNVCTQSYSFVWWDWARWEREIDWMALNGINLALAWSGQEAIWQRVYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GDTVDLSKKIFLKYHP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GDTVDLAKKIFLKYYP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KLLPTLDELLASSSHFLLGTWLDQARKAAVSEAEAQFYEQNGRYQITLWGPEGNILDYAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RLLLTAAPNLTTSPAFRYDLLDVTRQAVQELVSLCYEEARTAYLKQELDLLLRAGGLLVY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RRYGVSQPDAVAAWKLLLRSVYNCSGEACSGHNRSPLVKRPSLQMSTAVWYNRSDVFEAW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EDVNRGPQAARLFPNSTMVGTGIAPEGTGQNEVVYALMAELGWRKDPVPDLMAWVSSFAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WGPSQIRAVLEAVPRGRLLVLDLFAESHPVYMHTASFHGQPFIWCMLHNFGGNHGLFGAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WGPAQIRAVLGAVPRGRILVLDLFAESQPVYTRTASFQGQPFIWCMLHNFGGNHGLFGAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KEFGTDHIYGADTFNEMQPPFSEPSYLAATTAAVYEAMVTVDPDAVWLLQGWLFQHQPQF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ALGLTQSEIDTYFTGPAFLAWGRMGNLHTWDGPLPRSWHLSQVYLQHRILDRMRSFGMIP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ALGLTQAEINEFFTGPAFLAWGRMGNLHTWDGPLPPSWHIKQLYLQHRVLDQMRSFGMTP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LTETTPNRYRYYQNVCTHSYSFVWWDWARWEQEIDWMALNGINLALAWNGQEAIWQRVYL
                                                                                                                                                                                                                                                                                                                              (Mouse)
                                                                                                                                                                                                                                                                                        Chordata;
Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               734
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  736
                                                                                                                                                                                                                                                                                        Craniata; Vertebrata; F
Sciurognathi; Muridae;
      Adamski
.";
                                                                                                                                                                                                                                                                                                                                                                                                      update)
                                                                                                                                                                                                                                                                                                                                                                                      update)
                                                                                                                                                                                                                                                                                                            Euteleostomi;
                                                                                                                                                                                                                                                                                          Murinae;
                                                                                                                                                                                                                                                                                            Mus
                                                                                                                                                         '11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           718
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              598
```

В Š 밁 Ş B Ś 밁 Ş B δõ B δ 밁

밁 Ş 뮍 Š

```
RESULT 4

Q90276

ID Q90276

PRELIMINARY; PRT; 753

AC Q90276;

DT 01-DEC-2001 (TremBirel. 19, Created)

DT 01-DEC-2001 (TremBirel. 22, Last annotati

DE Lysosomal alpha-N-acetyl glucosaminidase.
                                                                                                                                                                        Ś
                                                                                                                                                                                                                                      망
                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                ф
                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                               음 성
                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                         B,
                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        유
                                                                                                                                                 망
                                                                                                                                                                                                 B
                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local
Matches 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Submitted (MAR-2001) to the EMBL/GenBank/DDBJ da

EMBL; AF003255; AAC26842.1; -

EMBL; AF363242; AAM21194.1; -

MGD; MGI:1351641; Naglu.

InterPro; IFR002086; Aldehyde dehydr.

PROSITE; PS00070; ALDEHYDE DEHYDR CYS; 1.

SEQUENCE 739 AA; 82596 MW; 01C71966557CDE27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Match
                                                                                                                                                                             661
                                                                                                                                                                                                    599
                                                                                                                                                                                                                        109
                                                                                                                                                                                                                                              539
                                                                                                                                                                                                                                                                  541
                                                                                                                                                                                                                                                                                         479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             610;
                                                                                                                                                        659
                                                                                                                                                                                                                                                                                                               481
                                                                                                                                                                                                                                                                                                                                    419
                                                                                                                                                                                                                                                                                                                                                         421
                                                                                                                                                                                                                                                                                                                                                                               359
                                                                                                                                                                                                                                                                                                                                                                                                    361
                                                                                                                                                                                                                                                                                                                                                                                                                         299
                                                                                                                                                                                                                                                                                                                                                                                                                                             301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          119
                                                                                                                                 721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     μ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity 82.9
10; Conservative
                                                                                                                                                                                                                                             RLLITSAPSLATSPAFRYDLLDITRQAVQELVSLYYEEARSAYLSKELASILRAGGVLAY
|||||:||:||:|| |||||||:||
RLLLTAAPNLTTSPAFRYDLLDVTRQAVQELVSLCYEEARTAYLKQELDLLLRAGGLLVY
                                                                                                                                                                                                                ELLPALDEVLASDSRFLLGSWLEQARAAAVSEAEADFYEQNSRYQLTLWGPEGNILDYAN
                                                                                                                                                                                                                                                                                                   RRYGVSHPDAGAAWRLLLRSVYNCSGEACRGHNRSPLVRRPSLQMNTSIWYNRSDVFEAW
                                                                                                                                                                                                                                                                                                                                               EAVNGGPEAARLFPNSTMVGTGMAPEGISQNEVVYSLMAELGWRKDPVPDLAAWVTSFAA
                                                                                                                                                                                                                                                                                                                                                                              WGPSQIRAVLEAVPRGRLLVLDLFAESHPVYMHTASFHGQPFIWCMLHNFGGNHGLFGAL
                                                                                                                                                                                                                                                                                                                                                                                            WGPAQIRAVLGAVPRGRLLVLDLFAESQPVYTRTASFQGQPFIWCMLHNFGGNHGLFGAL
                                                                                                                                                                                                                                                                                                                                                                                                                                      KEFGTDHIYGADTFNEMQPPSSEPSYLAAATTAVYEAMTAVDTEAVWLLQGWLFQHQPQF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ALGLTQAEINEEFTGPAFLAWGRMGNLHTWDGPLPPSWHIKQLYLQHRVLDQMRSFGMTP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEAVAVAAAVGVLLLAGAGGAAGDEAREAAAVRALVARLLGPGPAADFSVSVERALAAKP
                                                                                                                                GDTVDLAKKIFLKYYP
                                                                                                                                                         KQLAGLVADYYQPRWCLFLGTLAHSLARGVPFQQHBFEKNVFPLEQAFVYNKKRYPSQPR
                                                                                                                                                                    KQLAGLVANYYTPRWRLFLEALVDSVAQGIPFQQHQFDKNVFQLEQAFVLSKQRYPSQPR
                                                                                                                                                                                                    KLLPTLDELLASSSHFLLGTWLDQARKAAVSEAEAQFYEQNSRYQITLWGPEGNILDYAN
                                                                                                                                                                                                                                                                                         RRYGVSQPDAVAAWKLLLRSVYNCSGEACSGHNRSPLVKRPSLQMSTAVWYNRSDVFEAW
                                                                                                                                                                                                                                                                                                                                    EDVNRGPQAARLFPNSTMVGTGIAPEGIGQNEVVYALMAELGWRKDPVPDLMAWVSSFAI
                                                                                                                                                                                                                                                                                                                                                                                                                         KEFGTDHIYGADTFNEMQPPFSDPSYLAATTAAVYEAMVTVDPDAVWLLQGWLFQHQPQF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VLPAFAGHVPEAVTRVFPQVNVTXMGSWGHFNCSYSCSFLLAPEDPIFPIIGSLFLRELI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ALGLTQSEIDTYFTGPAFLAWGRMGNLHTWDGPLPRSWHLSQVYLQHRILDRMRSFGMIP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LTETTPNRYRYYONVCTHSYSFVWWDWARWEQEIDWMALNGINLALAWNGQEAIWQRVYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LTEATPNRYRYYONVCTQSYSFVWWDWARWEREIDWMALNGINLALAWSGQEAIWQRVYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GLDTYSLSGGGGVPVLVRGSTGVAAAAGLHRYLRDFCGCQVAWSSAQLHLPWPLPAVPDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GLDTYSLGGGGAARVRVRGSTGVAAAAGLHRYLRDFCGCHVAWSGSQLRLPRPLPAVPGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEAAGLAVILGFLLL--AGGSVGDEAREAKAVRELVVRLLGPGPAANFLVSVERALADES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      83.8%;
                                                                                                                                   736
           Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 3302; DB 11;
Pred. No. 8.6e-233;
4; Mismatches 70;
                                                         B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FLLAPGDPMFPLIGNLFLRELT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2
                                                                                                                                                                                                                                              598
                                                                                                                                                                                                                                                                                                             540
                                                                                                                                                                                                                                                                                                                                     478
                                                                                                                                                                                                                                                                                                                                                          480
                                                                                                                                                                                                                                                                                                                                                                               418
                                                                                                                                                                                                                                                                                                                                                                                                    420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     60
                                                                                                                                                                                                                                                                                                                                                                                                                         358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                238
                                    유정
                                                                                            Ś
                                                                                                                                     5
                                                                                                                                                            DЬ
                                                                                                                                                                                   5
                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                      B 5
                                                                                                                                                                                                                                                                                              망
                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                      망
                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         $
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOR REPRESENTATION
                                                                             문
                                                                                                                    맑
                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                                                                                                    문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5
    RESULT
```

```
Query Match
Best Local S
Matches 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDIINE=21309063; PubMed=11414757;
Aronovich E.L., Johnston J.M., Wang P., Giger U., Whitley C.B.;
"Molecular Basis of Mucopolysaccharidosis Type IIIB in Emu (Dromaius novaehollandiae): An Avian Model of Sanfilippo Syndrome Type B.";
Genomics 74:299-305(2001).
EMBL; AF331668; ARX73654 1; -
EMBL; AF331668; ARX73654 1; -
C4B5332A6775EC01 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Dromaius novae-hollandiae (Emu).
Eukaryota; Metazoa; Chordata; Crar
Archosauria; Aves; Palaeognathae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                595
                                                                                                                                                                                                  541
                                                                                                                                                                                                                                  535
                                                                                                                                                                                                                                                                                                                                    423
                                                                                                                                                                                                                                                                                                                                                                     415
                                                                                                                                                                                                                                                                                                                                                                                                     363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           175
                                                                661
                                                                                              655
                                                                                                                                601
                                                                                                                                                                                                                                                                  482
                                                                                                                                                                                                                                                                                                    475
                                                                                                                                                                                                                                                                                                                                                                                                                                     355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           115
721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ග
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                     YPSQPRGDTVDLAKKIFLKYYP
                                                              GGVLAYELLPALDEVLASDSRFLLGSWLEQARAAAVSEAEADFYEQNSRYQLTLWGPEGN
                                                                                                                                                                                                  DVYEAWRILLISAGAELGSSPTFGYDLADVTRQAAQQLVSEYYLSIRQAFQSRSLPELLTA
                                                                                                                                                                                                                      DVFEAWRLILITSAFSLATSPAFRYDLLDLTRQAVQELVSLYYEEARSAYLSKELASLLRA
                                                                                                                                                                                                                                                                  VARYAERRYGAPNAAAASAWQLLLRSVYNCTG-VCVNHNRSPLVRRPSLRMDTEVWYNKS
                                                                                                                                                                                                                                                                                      VTSFAARRYGVSHPDAGAAWRLLLRSVYNCSGEACRGHNRSPLVFRPSLOMNTSIWYNRS
                                                                                                                                                                                                                                                                                                                                   GLFGALEAVNGGGPEAARLFPNSTMVGTGMAPEGISQNEVVYSLMAELGWRKDPVPDLAAW
                                                                                                                                                                                                                                                                                                                                                                                                   QHQPDFWQPAQVRALLHGVPLGRMIVLDLFAESRPVYQWTESFYGQPFIWCMLHNFGGNH
                                                                                                                                                                                                                                                                                                                                                                                                                       OHQPQFWGPAQIRAVLGAVPRGRLLVLDLFAESQPVYTRTASFQGQPFIWCMLHNFGGNH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FLRELIKEFGTDHIYGADTFNEMQPPSSEPSYLAAATTAVYEAMTAVDTEAVWLLQGWLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SLGMITVLPAFAGHVPQGVLRAFPRVNATRLGGWSHFDCTYSCTYLLDPEDPMFQVIGTL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SFGMTPVLPAFAGHVPEAVTRVFPQVNVTKMGSWGHFNCSYSCSFLLAPEDPIFFIIGSL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WQRVYLALGLTQAEINEFFTGPAFLAWGRMGNLHTWDGPLPPSWHIKQLYLQHRVLDQMR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AA-GGLDTYRVHSPPGAAVAVAVAGSSGVAAAAGLHRYLRDLCGCHLSWSGRQLRLPDPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAKPGIDTYSIGG--GGAARVRVRGSTGVAAAAGLHRYLRDFCGCHVAWSGSQLRLPRPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VAVAAAVGVLLLAGAGG-----AAGDEAREAAAVRALVARLLGPGPAADFSVSVERAL
 YPTAPVGDTLEISKKIFLKYYP
                                                                                                                                  GGVLVYDLLPELDGLLSSHRLFLLGRWLESARAVATSDREAEQYELNARNQVTLWGPNGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FIKELIKEFGTDHIYSADTFNEMNPLSSDPAYLSRVSSAVFRSMTGADPKAVWLMQGWLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WQRVYLSLGLNQSEIDEYFTGPAFLAWNRMGNLHGWAGPLPRAWHLKQLYVQYRVLERMR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VRLTALAAMMAAARAASPPLPPVRAGAEDARQEAAVRALARRLLGPRAAA-VALSVDGSL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative 105;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 66.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 2613.5;
Pred. No. 2e-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Craniata; Vertebrata; Euteleost
nae; Casuariiformes; Dromaiidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches 144;
742
                                736
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    eostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                  654
                                                                                                                                                                                                                                                                                                                                                                     474
                                                                                                714
                                                                                                                                  660
                                                                                                                                                                                                    600
                                                                                                                                                                                                                                    594
                                                                                                                                                                                                                                                                    540
                                                                                                                                                                                                                                                                                                    534
                                                                                                                                                                                                                                                                                                                                      481
                                                                                                                                                                                                                                                                                                                                                                                                      422
                                                                                                                                                                                                                                                                                                                                                                                                                                     414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           294
```

```
Q90Z75
ID Q90Z75,
AC Q90Z75,
AC Q90Z75,
DT 01-DEC-2001 (TrEMBLrel. 19, Created)
DT 01-DEC-2001 (TrEMBLrel. 20, Last sequence update)
DT 01-DEC-2002 (TrEMBLrel. 22, Last annotation update)
DT 01-OCT-2002 (TrEMBLrel. 22, Last annotation update)
DC Dromaius novae-hollandiae (Emu)
OC Dromaius (Caracia Caracia 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local S
Matches 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.

MEDLINE-21309063; PubMed-11414757;

Aronovich E.L., Johnston J.M., Wang P., Giger U., Whitley

"Molecular Basis of Mucopolysaccharidosis Type IIIB in Emu
novachollandiae): An Avian Model of Sanfilippo Syndrome Ty
Genomics 74.299-305(2001).

Genomics 74.299-305(2001).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Eukaryota, Metazoa, Chordata, Craniata, Vertebrata,
Archosauria, Aves, Palaeognathae, Casuariiformes, Dr
                                                                                                                                                                    541
                                                                                                                                                                                                                                                                                                                                                                                 415
                                                                                                                                                                                                                                                                                                                                                                                                                         363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    123
                                                                                 601
                                                                                                                           595
                                                                                                                                                                                                                                                       482
                                                                                                                                                                                                                                                                                                475
                                                                                                                                                                                                                                                                                                                                        423
                                          655
661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          480;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ហ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VAVAAAVGVLLLAGAGG-----AAGDEAREAAAVRALVARLLGPGPAADFSVSVERAL
                                                                                                                                                                                                                                                                                                                                    FLRELIKEFGTDHIYGADTFNEMQPPSSEPSYLAAATTAVYEAMTAVDTEAVWLLQGWLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SIGMITVLPAFAGHVPQGVLRAFPRVNATRLGGWSHFDCTYSCTYLLDPEDPMFQVIGTL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SFGMTPVLPAFAGHVPBAVTRVFPQVNVTKMGSWGHFNCSYSCSFLLAPEDPIFPIIGSL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WQRVYLSLGLNQSEIDEYFTGPAFLAWNRWGNLHGWAGPLPRAWHLKQLYVQYRVLERWR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PAVPGELTEATPNRYRYYQNVCTQSYSFVWWDWARWEREIDWMALNGINLALAWSGQEAI
                                                                                                                                                                                                                                                                                                                                                                                                                                                    QHQPQFWGPAQIRAVLGAVPRGRLLVLDLFAESQPVYTRTASFQGQPFIWCMLHNFGGNH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WQRVYLALGLTQABINEFFTGPAFLAWGRMGNLHTWDGPLPPSWHIKQLYLQHRVLDQMR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRVPAEIRATAPGRFRYYONVCTOSYSFAWWDWARWEEEIDWMALSGINLALAFAGOEAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAKPGLDTYSLGG--GGAARVRVRGSTGVAAAAGLHRYLRDFCGCHVAWSGSQLRLPRPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VRLTALAAMMAAARAASPPLPXVRAGAEDARQEAAVRALARRLLGPRAAA-VALSVDGSL
                                                                                   GGVLVYDLLPELDGLLSSHRLFLLGRWLESARAVATSDREAEQYELNARNQVTLWGENGN
                                                                                                            GGVLAYELLPALDEVLASDSRFLLGSWLEQARAAAVSEAEADFYEQNSRYQLTLWGPEGN
                                                                                                                                                                    DYYEAWRILISAGAELGSSPTFGYDLADYTRQAAQQLVSEYYLSIRQAFQSRSLPELLTA
                                                                                                                                                                                                          DVFEAWRILLITSAPSLATSPAFRYDLIDLTRQAVQELVSLYYEBARSAYLSKELASLLRA
                                                                                                                                                                                                                                                       VARYAERRYGAPNAAAASAWXLLLRSVYNCTG-VCVNHNRSPLVRRPSLRMDTEVWYNKS
                                                                                                                                                                                                                                                                                         VTSFAARRYGVSHPDAGAAWRLLLRSVYNCSGEACRGHNRSPLVRRPSLQMNTSIWYNRS
                                                                                                                                                                                                                                                                                                                                                                                                                         QHQPDFWQPAQVRALLHGVPLGRMIVLDLFAESRPVYQWTESFYGQPFIWCMLHNFGGNH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FIXELIKEFGTDHIYSADTFNEMNPLSSDPAYLSRVSSAVFRSMTGADPKAVWLMQGWLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AA-GGLDTYRVHSPPGAAVAVAVAGSSGVAAAAGLHRYLRDLCGCHLSWSGRQLRLPDPL
                                      ILDYANKQLAGLVANYYTPRWRLFLEALVDSVAQGIPFQQHQFDKNVFQLEQAFVLSKQR
  ILDYANKQLGGLVLDYYGVRWSLFVSALVESLNSGSPFHQDQFNQAVFQVERGFIYNKKR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       66.3%;
ilarity 64.7%;
Conservative 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          104;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 2611.5;
Pred. No. 2.8e-
04; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3B0445E30B48AA85 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .8e-182;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          145;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Dromaiidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ley C.B.;
Emu (Dromaius
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Type
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        174
                                                                                                                                                                                                                                                                                                                                                                                                                         422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         63
                                                                                                                                                                                                                 594
                                                                                                                                                                                                                                                                                                534
                                                                                                                                                                                                                                                                                                                                                                                   474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         234
                                                                                     660
                                                                                                                              654
                                                                                                                                                                      600
                                                                                                                                                                                                                                                       540
                                                                                                                                                                                                                                                                                                                                          481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9
                                                                                                                                                                                                                                                                                                                                                      •
                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                               8
                                                                                     문
                                                                                                                  S
                                                                                                                                                                    문
                                                                                                                                                                                                          Ś
    밁
```

S

片 8 밁 Ś 밁 Ş 밁 Š 밁 Š В Ś В

Ś

B S g 8

뭐

8 밁 Ş

밁

```
Query Match
Best Local S
Matches 304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ul-MAR-2001 (TrEMBLrel. 16, Created)
01-MAR-2001 (TrEMBLrel. 16, Last sequer
01-OCT-2002 (TrEMBLrel. 22, Last annota
Putative alpha-N-acetylglucosaminidase.
AT5013690.
                                                                                                                                                                                                                                                                                                  EMEL; ANDOS704; BABO8696.1;
EWBL; ANDOS0811; AAL87291.1;
EMBL; AY117179; AAM51254.1;
EMBL; AY117179; AAM51254.1;
SEQUENCE 806 AA; 92689 MW
                                                                                                                                                                                                                                                                                                                                                                                                                                            Yamada K., Banh J., Chan M.M., Chang C.H., Chang E., Dale J.M., Deng J.M., Goldsmith A.D., Lee J.M., Onodera C.S., Quach H.L., Tang C., Toriumi M., Wu H.C., Yamamura Y., Yu G., Bowser L., Carninci P., Chen H., Cheuk R., Hayashizaki Y., Ishida J., Jones Kamiya A., Karlin-Neumann G., Kawai J., Kim C., Lam B., Lin J., Miranda M., Narusaka M., Nguyen M., Palm C.J., Sakurai T., Satou Seki M., Shin P., Southwick A., Shinozaki K., Davis R.W., Ecker
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q9FNA3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Yamada K., Liu S.X., Sakano H., Pham P.K., Banh J., Chung M.K., Goldsmith A.D., Lee J.M., Quach H.L., Torium M., Yu G., Bowser L Garninci P., Chen H., Cheuk R., Hayashizaki Y., Ishida J., Jones Kamiya A., Karlin-Neumann G., Kawai J., Kim C., Lam B., Lin J., Miranda M., Narusaka M., Nguyen M., Palm C.J., Sakurai T., Satou Seki M., Shinn P., Southwick A., Shinozaki K., Davis R.W., Ecker
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              "Structural analysis of Arabidops
Sequence features of the regions
physically assigned P1 clones.";
DNA Res. 4:291-300(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Arabidopsis thaliana (Mouse-ear cress).

Bukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;

Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Rosidae;

eurosids II; Brassicales; Brassicaceae; Arabidopsis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             "Arabidopsis Full Le
Submitted (FEB-2002)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Tabata
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STRAIN=Columbia;
MEDLINE=98069011; PubMed=9405937;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                               Theologis A.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Theologis A.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Kotani
                                                                                                                                                                                                                                                                                                                                                                                                          Arabidopsis Open Reading
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  721
160
                                                                                                                  80
                                                                                                                                                      4.5
                                                                                                                                                                                            83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              H., Nakamura Y., S.;
                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FROM N.A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                YPTAPVGDTLEISKKIFLKYYP
                                                                                                  YPSQPRGDTVDLAKKIFLKYYP
                                   ONVCTOSYSFVWWDWARWEREIDWMALNGINLALAWSGOEAIWORVYLALGLTOAEINEF 192
                                                                                                                                                      QESAAKGILQRII-----PTHSQSFELRIISKDACGGTSCFVIENYDGPGRIGPEILIKG
                                                                                                                                                                                            EAAAVRALVARLLGPGPAADFSVSVERALAAKPG------
<u>QNVVTSSYSYVWWGWERWEREIDWMALQGINLPLAFTGQEAIWQKVFKRFNISKEDLDDY</u>
                                                                                                                                                                                                                                 38.7%; Solarity 38.8%; P: Conservative 161;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length cDNA Clones.";
02) to the EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                 92689 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        of Arabidopsis
the regions of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sato
                                                                                                                                                                                                                                                                                                                                                                                                                 Frame
                                                                                                                                                                                                                                                                                                                                                                                            came (ORF) Clones.";
EMBL/GenBank/DDBJ d
                                                                                                                                                                                                                                 Score 1522.5; DB 10;
Pred. No. 1.4e-102;
1; Mismatches 223; II
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               :
:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRT;
                                                                                                                                                                                                                                                                                                                 8F8500032F3BCFA2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  742
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    sequence u
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Kaneko
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      thaliana c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .
:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   , Banh J., ເມ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Asamizu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      chromosome
2 bp covered
                                                                                                                                                                                                                                                                                                                                                                                              databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  databases
                                                                                                                                                                                                                                                                                                                   CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          covered
                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                  -LDTYSLGGGGAARVRVRG
                                                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (M)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             υ
•
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Miyajima
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Bowser L., . Jones T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        γď
                                                                                                                                                                                                                                     95;
                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                      43
                                                                                                                                                                                                                                                                                                                                                                                                                                                      æ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ъ.
                                                                                 159
                                                                                                                                                            99
                                                                                                                                                                                                  79
```

```
PRESULT TO SEE THE SELECT TO SEE THE SELECT TO SEE THE SELECT TO S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                멼
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
  Query Ma
Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                          Q9ZR45

Q9ZR45;
Q9ZR45;
Q1-MAY-1999 (TrEMBLrel. 10, Created)
Q1-MAY-1999 (TrEMBLrel. 10, Last sequence update)
Q1-MAY-1999 (TrEMBLrel. 10, Last annotation update)
Q1-MAY-1999 (TrEMBLrel. 10, Last annotation update)
Alpha-N-acetylglucosaminidase.
Alpha-N-acetylglucosaminidase.
Nicotiana tabacum (Common tobacco).
Rukaryocta; Viridiplantae; Streptophyta; Embryophyta; Tracheo; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Spermatophyta; Magnoliophyta; Selanaceae; Nicotiana.
                                                                                                                                "Isolation and characterization of a alpha-N-acetylglucosaminidase."; plant Physiol. 118:1534-1534 (1998). EMBL; Y18209; CAA77084.1; -
                                                                                                                                                                                                                                  Shen
                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
STRAIN-Bright Yellow
                                                                                                                                                                                                                                                                                                                                  NCBI_TaxID=4097;
Local Similarity
                                                                                                                                                                                                                                        W.H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                804
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          694
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 734
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  754
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   685
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  530
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 dax
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NQVYTEAVTAFVKKDIGSL----GQLSEKFLELIKDMDVLLASDDNCLLGTWLESAKKLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NCDTENENTPPTSEPEYISSLGAAVYKAMSKGNKNAVWLMQGWLESSDSKEWKPPQLKAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GADTENEMOPPSSEPSYLAAATTAVYEAMTAVDTEAVWILLOGWIFQHQPQFWGPAQIRAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LRKIYPEANITRLDNWNTVDGDSRWCCTYLLNPSDFLFIEIGEAFIKQQTBEYGEITNIY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JAY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KNGDERKQYEWNARTQVTMWYDSNDVNQSKLHDYANKFWSGLLEDYYLPRARLYFNEMLK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VSEAEADFYEQNSRYQLTLWGP----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SLYYEEARSAYLSKELASILRAGGVLA---YELLPALDEVLASDSRFILGSWLEQARAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RRVLFQDKTADLPKAHLWYSTKEVIQALKLFLEAGDDLSRSLTYRYDMVDLTRQVLSKLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LHSVPFGKMIVLDLYAEVKPIWNKSAQFYGTPYIWCMLHNFGGNIEMYGALDSISSGPVD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VTRVFPQVNVTKMGSWGHF--NCSYSCSFLLAPEDPIFPIIGSLFLRELIKEFG-TDHIY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FGGPAFLAWARMGNLHAWGGPLSKNWLDDQLLLQKQILSRMLKFGMTPVLPSFSGNVPSA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FTGPAFLAWGRWGNLHTWDGPLPPSWHIKQLYLQHRVLDQWRSFGWTPVLDAFAGHVPEA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SVAQGIPFQQHQFDKNVFQLE---QAFVL-----SKQRYPSQPRGDTVDLAKKIFLK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AGAAWRLLLRSVYNCSGEACRGHNRSPLVRRPSLOMVTSI---------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ARVSKNSTMVGVGMCMEGIEONPVVYELTSEMAFRDEKV-DVQKWLKSYARRRYMKENHO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ARLFPNSTMVGTGMAPEGISQNEVVYSLMAELGWRKDPVPDLAAWVTSFAARRYGVSHPD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LGAVPRGRLLVLDLFAESQFVYTRTASFQGQPFIWCMLHNFGGNEGLFGALEAVNGGPEA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                806
                                                                                                       AA,
                                                                                                       93444 MW;
                           36.7%;
                                                                                                                                                                                                                                                             2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ----WYNRSDVFEAWRILLTSAPSLATSPAFRYDLLDLTRQAVQELV
  Score 1445; D
Pred. No. 6.6e
36; Mismatches
                                                                                                       E3F07800816996F1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -EGNILDYANKQLAGLVANYYTPRWRLFLEALVD
                                                                                                                                                                                                            tobacco
                6.6e-97;
                                                                                                                                                                                                            CDNA
                                                                                                       CRC64
                                                 Length
     Indels
                                                                                                                                                                                                            encoding
                                                                                                                                                                                                                                                                                                                                                                                                                 Tracheophyta;
                                                   811;
                                                                                                                                                                                                         ςυ,
     68;
                                                                                                                                                                                                            putative
     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  572
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      577
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        518
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 369
     18
```

음 성

음 성

Ś

8 8 8 8

문

```
641
                                                                                                                                                                                                       581
                                                                                                                                                                                                                                                                                                         492
                                                                                                                                                                                                                                                                                                                                           463
                                                                                                                                                                                                                                                                                                                                                                          432
                                                                                                                                                                                                                                                                                                                                                                                                           403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  104
                                                                   700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    28
SVAQGIPFQQHQFDKNVFQLEQAFVLSKQRYPSQPRGDTVDLAKKIFLKYY
                                                                                     VSEAEADFYEQNSRYQLTLWGP-----
                                                                                                                                                                                                     WNRRFLFFEKSSSLPKPRLWYSTEDVFQALQLFIDALKKLSGSLTYRYDLVDLSRQSLSK
                                                                                                                                                                                                                                                                       TSENSTWVGVGMCMEGIEHNPVVYELMSEMAFREDNF-QLQGWLKSYSHRRYGKVNDQIQ
                                                                                                                                                                                                                                                                                                                                                          LFPNSTMVGTGMAPEGISQNEVVYSLMAELGWRKDPVPDLAAWVTSFAARRYGVSHPDAG
                                                                                                                                                                                                                                                                                                                                                                                                           SVPRGKMIVLDLFADVKPIWKSSSQFYGTPYIWCMLHNFGGNIEMYGVLDAVASGPIDAR
                                                                                                                                                                                                                                                                                                                                                                                                                            AVPRGRLLVLDLFAESQPVYTRTASFQGQPFIWCMLHNFGGNHGLFGALEAVNGGPEAAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TFNEMQPPSSEPSYLAAATTAVYEAMTAVDTEAVWL-LQGWLFQHQPQFWGPAQIRAVLG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AFLAWGRMGNLHTWDGPLPPSWHIKQLYLQHRVLDQMRSFGMTFVLPAFAGHVPEAVTRV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAAAGIHRYIRDFCGCHVAW----SGSQL-RIPRP--LPAVPG-ELTEATPNRYRYYQNVC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      QESAAKGVLQRLL-PAHLHSPEPKIVSKDLCGGRSCFRITNYKVSSRNSPEILIQGTTAV
                                                                     MNSDEKKQ
                                                                                                                                       LANQVYLDAISAF-RREDAKPLNOHSPKFLPLLQDIDRLLAADDNFLLGTWLENCPONLA
                                                                                                                                                                  LVSLYYBBARSAYLSKELASLLRAGGVLAYBLLPALDEVLASDSRFLLGSWLEQA-RAAA
                                                                                                                                                                                                                                         ₹
                                                                                                                                                                                                                                                                                                         AAWRLLIRSVYNCSGEACRGHNRSPLVRRP-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TFNENTPPTDDPTYIHLSALLCTKQCQKQITMRCWLNARVWLFYSDSKYWKSPQMEALLH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AFLAWARMGNIHAWGGPLSONWINIQLALOKQIISRWREIGMTPVLPSFSGNVPAALKKI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TSSYSFVWWDWQRWEKEIDWMTLPGINLPLAFTGQEAIWQKVFLDYNITTQDLNDFFGGP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TQSYSFVWWDWARWEREIDWMALINGINLALAWSGQEAIWQRVYLALGLTQAEINEFFTGP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EITSGLHWYLKYRCGAHISWDKTGGVQLASVPKPGSLPLVKQMELTIQRPVPWNYYQNVV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EAAAVRALVARLLGPGPAADFSVS-VERALAAKPG---LDTYSLGGGGAARVRVRGSTGV
                                                                                                                                                                                                                                      -----TSIWYNRSDVFEAWRLLLTSAPSLATSPAFRYDLLDLTRQAVQE
                                                                     EWNARTOITMWFDNTKYNOSQLHDYANKFWSGLLEAYYLPRASIYFELLSK
                                                                                                     EGNILDYANKOLAGIVANYYTPRWRLFLEALVD
       810
                                                                                                                                                                                                                                                                                                           ----SLQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             402
                                                                                                       684
                                                                                                                                         699
                                                                                                                                                                                                         640
                                                                                                                                                                                                                                         570
                                                                                                                                                                                                                                                                           580
                                                                                                                                                                                                                                                                                                           524
                                                                                                                                                                                                                                                                                                                                                                             491
                                                                                                                                                                                                                                                                                                                                                                                                             462
                                                                                                                                                                                                                                                                                                                                                                                                                                             431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      103
```

유정

5

밁

문

Ş

8 8 8 8 8 8 8 8 8

```
Q9VLL5
Q9VLL5
Q9VLL5
Q9VLL5; Q95TJ3;
D1
Q9VLL5; Q95TJ3;
D7
O1-MAY-2000 (TrEMBLrel. 13, Created)
D7
O1-MAY-2002 (TrEMBLrel. 22, Last sequence update)
D7
O1-CCT-2002 (TrEMBLrel. 22, Last annotation update)
D7
O1-CCT-2002 (TrEMBLrel. 22, Last annotation update)
D8
CG13397 protein (LP03571p).
GN ESTS:172F5T OR CG13397.
GN ESTS:172F5T OR CG13397.
OS Drosophila melanogaster (Fruit fly).
GN ESTS:172F5T OR CG13397.
OC Eukaryota; Metazoa; Arthropoda; Hexapoda; Insecta; Pterygota; Drosophila melanogaster (Fruit fly).
OC Eukaryota; Metazoa; Arthropoda; Hexapoda; Insecta; Pterygota; D7
CC Eukaryota; Metazoa; Arthropoda; Hexapoda; Insecta; Pterygota; D7
CC Neoptera; Endopterygota; D19tera; Brachycera; Muscomorpha;
OC Ephydroidea; Drosophilidae; Drosophila.
OX NCBI TaxID=7227;
RN [1]
RP SEQUENCE FROM N.A.
Adams M.D., Celniker S.E., Holt R.A., Evans C.A., Gocayne J.D.,
RA Adams M.D., Celniker S.E., Li P.W., Hoskins R.A., Galle R.F.,
```

```
RA George R.A., Lewis S.E., Richards S., Ashburner M., Henderson S.N., as Sutton G.G., Wortman J.R., Yandell M.D., Zhang Q., Chen L.X., RA Brandon R.C., Rogers Y.-H.C., Blazej R.G., Champe M., Pfeiffer B.D., RA Man K.H., Doyle C., Baxker E.G., Helt G., Nelson C.R., Miklos G.L.G., RA Abril J.F., Agbayani A., An H.-J., Andrews-Pfannkoch C., Beasley E.M., RA Ballew R.M., Basu A., Baxendale J., Bayraktaroglu L., Beasley E.M., RA Beeson K.Y., Benos P.V., Barman B.P., Bhandari D., Bolshakov S., Berman B.P., Bhandari D., Bolshakov S., RA Burtis K.C., Busam D.A., Butler H., Cadieu E., Center A., Chandra I., RA Gerry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P., RA Dodson K., Doup L.B., Downes M., Duyan-Rocha S., Dunkov B.C., Dunn P. RA Dodson K., Doup L.B., Downes M., Dugan-Rocha S., Dunkov B.C., Dunn P. RA Fosler C., Gabrielian A.E., Garg N.S., Gelbart W.M., Glasser K., Galder G., Gabrielian A.E., Garg N.S., Gelbart W.M., Glasser K., Galder G., Gabrielian A.E., Garg N.S., Gelbart W.M., Glasser K., RA Glodek A., Gong F., Gorrell J.H., Gu Z., Guan P., Harris M., Harvey D., Heiman T.J., Hernandez J.R., Houck J., Harris N.L., Harvey D., Heiman T.J., Hernandez J.R., Houck J., Laid J., Kalush F., Karpen G.H., Ke Z., Kennison J.A., Ketchum K.A., Kimmel B.E., Kodira C.D., Kraft C., Kravitz S., Kulp D., Lai Z., Laid J., Kimmel B.E., Kodira C.D., Kraft C., Kravitz S., Kulp D., Lai Z., RA Lasko P., Lei Y., Levissky A.A., Li J., Li Z., Liang Y., Lin X., Lasko P., Lei Y., Levissky A.A., J. J., Li Z., Hang Y., Lin X., RA Mount S.M., Moy M., Murphy B., Murphy L., Muzny D.M., Nelson D.L., RA Mount S.M., Moy M., Murphy L., Muzny D.M., Nelson D.L., RA Mount S.M., Moy M., Murphy L., Muzny D.M., Nelson D.L., R. Allein M., Weissen D.C., Scheeler F., Shen H., Ra Spier E., Spradling A.C., Scapleton M., Strong R., Sun B., Wang X., Yen R., F., Zaveri J.S., Zhan M., Zhang G., Zhao Q., Zhang L., Zhong Y., Yen R., F., Zaveri J.S., Zhan M., Zhang G., Zhao Q., Zhang L., Shen H., Shen H., Mang X., Shen H., Shen H., Mang X., Shen H., Shen H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RA Celniker S.E., Adams M.D., Kronmiller B., Wan K.H., Holt R.A., Celniker S.E., Adams M.D., Amanatides P.G., Brandon R.C., Rogers Y., A Banzon J., An H., Baldwin D., Amanatides P.G., Brandon R.Y., Busam D.A., A Carlson J.W., Center A., Champe M., Davenport L.B., Dietz S.M., Dodson K., Dorsett V., Doup L.E., Doyle C., Dresnek D., Farfan D., Perriera S., Frise E., Galle R.F., Garg N.S., George R.A., A Gonzalez M., Houck J., Hoskins R.A., Hoskin D., Howland T.J., A McIntosh T.C., Moy M., Murphy B., Nelson C., Nelson K.A., Nunco J., A McIntosh T.C., Moy M., Murphy B., Nelson C., Nelson K.A., Nunco J., A McIntosh T.C., Moy M., Murphy B., Nelson C., Nelson K.A., Nunco J., A McIntosh T.C., Moy M., Murphy B., Nelson C., Nelson K.A., Nunco J., A McIntosh T.C., Moy M., Murphy B., Nelson C., Nelson K.A., Nunco J., A McIntosh T.C., Moy M., Murphy B., Nelson C., Nelson K.A., Nunco J., A McIntosh T.C., Moy M., Murphy B., Nelson C., Nelson K.A., Nunco J., A McIntosh T.C., Moy M., Murphy B., Nelson C., Nelson K.A., Nunco J., A McIntosh T.C., Stitman G.S., Puri V., Richards S., Scheeler F., Stapleton M., Strong R., Svirskas R., Tetotor C., Tyler D., Stapleton M., Strong R., Svirskas R., Tetotor C., Tyler D., Stapleton M., Strong R., Swirskas R., Tetotor C., Tyler D., Stapleton M., Strong R., Swirskas R., Tetotor C., Tyler D., Stapleton M., Strong R., Swirskas R., Tetotor C., Tyler D., Stapleton M., Strong R., Swirskas R., Tetotor C., Tyler D., Stapleton M., Strong R., Swirskas R., Tetotor C., Tyler D., Stapleton M., Strong R., Swirskas R., Tetotor C., Tyler D., Stapleton M., Strong R., Swirskas R., Tetotor C., Tyler D., Stapleton M., Strong R., Swirskas R., Tetotor C., Tyler D., Stapleton M., Strong R., Swirskas R., Tetotor C., Tyler D., Stapleton M., Strong R., Swirskas R., Tetotor C., Tyler D., Stapleton M., Strong R., Swirskas R., Tetotor C., Tyler D., Stapleton M., Strong R., Swirskas R., Tetotor C., Tyler D., Stapleton M., Strong R., Swirskas R., Tetotor C., Tyler D., Swirskas R., Tetotor C., Tyler D., Swirskas R., Tetoto
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A. Misra S., Crosby M.A., N. Hradecky P., Huang Y., F. Tupy J.L., Bergman C., E. Clamp M., Drysdale R., F. Clamp M., Drysdale R., F.
Submitted [6]
                                                                                                                                                                                                                               Adams M.D.
Submitted
                                                                                                                                                                                                                                                                                                                                                                                                        Misra S., Crosby M.A., Matthews B.B., Bayraktaroglu L., Campbell K Hradecky P., Huang Y., Kaminker J.S., Prochnik S.E., Smith C.D., Tupy J.L., Bergman G., Berman B., Carlson J.W., Celniker S.E., Clamp M., Drysdale R., Emmert D., Frise E., de Grey A., Harris N., Kronmiller B., Marshall B., Millburn G., Richter J., Russo S., Searle S.M.J., Smith E., Shu S., Smutniak F., Whitfield E., Ashburner M., Gelbart W.M., Rubin G.M., Mungall C.J., Lewis S.E., "Annotation of Drosophila melanogaster genome."; Submitted (MAR-2000) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                               3 FROM N.A.
.D., Celniker
ed (MAR-2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FROM N.A.

C S.E., Adams M.I

.A., Gocayne J.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FROM N.
                                                      (SEP-2002)
                                                 ç
                                                                                                                                                                                                                                         ۲
د
د
                                                                                                                                                                                                                                    o the
                                                      the
                                                                                                                                                                                                                                    Gibbs
e EMBL/
                                                      EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                         R.A., Rubin
/GenBank/DDBJ
                                                                                                                                                                                                                                                                                      G
                                                                                                                                                                                                                                         G.M., Vente
                                                                                                                                                                                                                                                                            Venter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Miklos G.L.G.,
Baldwin D.,
Basley E.M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .X.,
iffer B.D.,
a.L.G.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Chandra I.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .Α.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ¥ .
```

```
RESULT 9
Q9AAQ6
ID Q9AA
                                                                                                                                          밁
                                                                                                                                                                 Ś
                                                                                                                                                                                                    맑
                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                      $
                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local S
Matches 302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.

STRAIN-Berkeley:
Stapleton M., Brokstein P., Hong L., Agbayani A., Carlson J.,
Stapleton M., Brokstein P., Hong L., Agbayani A., Carlson J.,
Champe M., Chavez C., Dorsett V., Farfan D., Frise E., George
Gonzalez M., Guarin H., Li P., Liao G., Miranda A., Mungall C.
Numoo J., Pacleb J., Paragas V., Park S., Phouanenavong S., Wa
Yu C., Lewis S.E., Rubin G.M., Celniker S.;
Submitted (OCT-2001) to the EMBL/GenBank/DDBJ databases.
EMBL; ASO3521; AAF32672.2; -
EMBL; AY058738; AAL139671; -
                                                                                                                                                                                                                                                                                                                                                                                            446
                                                                                                                                                                                                                                                                                                                                                                                                                                                        386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             149
                                                                            739
                                                                                                                                                                                                                                                                                                                                                             488
                                                                                                                                                                                                                                                                                                                                                                                                                         428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  302;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                              NKQLAGLVANYYTPRWRLFLBALVDSVAQGIPFQQHQFDKNV-FQLEQAFVLSKQRYPSQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HVPEAVTRVFPQVNVTKMGSWGHFNCSYSCSFILAPEDPIFPIIGSLFLRELIKEFGTDH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RYRYYQNVCTQSYSFVWWDWARWEREIDWMALNGINLALAWSGQEAIWQRVYLALGLTQA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VGVLLLAGAGGAAGDEAREAAAVRALVARLLGPGPAADFSVSVERALAAKPGLDTYSLGG
                                                                                                          PRGDTVDLAKKIF
                                                                                                                                                                                                                                                                                               APSLATS----PAFRYDLIDLTRQAVQELVSLYYEEARSAYLSKELASLLRAGGVLAYEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AVLGAVPRGRLLVLDLFAESQPVYTRTASFQGQPFIWCMLHNFGGNHGLFGALEAVNGGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LDDGRILLMGWDGVSVCKALHHYLKYVLNKDVDWFKMRIELPTNLQLPNVTIESKSASP-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGAARVRVRGSTGVAAAAGLHRYLRDFCGCHVAWSGSQLRLPR--PLPAVPGELTEATFN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MGLQMAAHLAPSTPKDVQETÄÄM-ÄVISRVIGERSSQLFKVQVNKNM-----DLRSFQISM
                                                                            PVGNTWLISQDIF
                                                                                                                                          CKQWSGL
                                                                                                                                                                                                       <u>LKLFDDMELILASSRNFLLGNWLQQAKQAAPNTGQQRNFEFNARNQITAWGPDGQILDYA</u>
                                                                                                                                                                                                                                                                 RAIIPLEDNRYEIYEHDLVDITROFLQISADQLYINLRSAYRKRQVSRF----
                                                                                                                                                                                                                                                                                                                                 ERLEQAWLLLKNSVYSFRGLQKMRG
                                                                                                                                                                                                                                                                                                                                                          PDAGAAWRIJIRSVYNCSG-EACRGHNRSPLVRRPSIQMNTSIWYNRSDVFEAWRIJITS
                                                                                                                                                                                                                                                                                                                                                                                           EEARRLPNSSLVGTGITPEGIGONYVMYSFTLERGWSNTSL-DLDSWFTNFSHSRYGVKD
                                                                                                                                                                                                                                                                                                                                                                                                                         EAARLFPNSTMVGTGMAPEGISQNEVVYSLMAELGWRKDPVPDLAAWVTSFAARRYGVSH
                                                                                                                                                                                                                                                                                                                                                                                                                                                       AFLTAAPRGRILVLDLQSEQFPQYELTRSYFGOPFIWCMLHNFGGTLGMFGSAKLINSGI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EIDEHLAGPAFQAWQRMGNIRGWAGPLTPAWRRYQLLLQQEIITAQRNLGMSVALPAFAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EINEFFTGPAFLAWGRMGNLHTWDGPLPPSWHIKQLYLQHRVLDQMRSFGMTPVLPAFAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -IIYHQNVCTWSYSFAWWGIEQWRRHLDWMALMGISLTIA-PVQEAIWVKVYTDMGLRME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                VLASDSRFLLGSWLEQARAAAVSEAEADFYEQNSRYQLTLWGPEGNILDYA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                36.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    120;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 1433.5;
Pred. No. 4.3e-
20; Mismatches
                                                                                                                                           LEDVTVALHAGR PFNGTA FKLKVSHEIEL PFSNKDDVY PVT
                                                                                                                                                                                                                                                                                                                                 -QYVVTRRPSFNQEPFTWYNASAVLDAWHLLLTF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5; DB
.3e-96;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    284;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                <u>ن</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    27;
                                                                                                                                                                                                                                                                     -BFLSVKL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .
u x
                                                                                                                                                                           718
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          89
                                                                                                                                                                                                            678
                                                                                                                                                                                                                                       659
                                                                                                                                                                                                                                                                      618
                                                                                                                                                                                                                                                                                                      602
                                                                                                                                                                                                                                                                                                                                    562
                                                                                                                                                                                                                                                                                                                                                                546
                                                                                                                                                                                                                                                                                                                                                                                                504
                                                                                                                                                                                                                                                                                                                                                                                                                            487
                                                                                                                                                                                                                                                                                                                                                                                                                                                            445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    13
```

Q9AAQ6

PRELIMINARY;

770

3

```
뮍
                                                                        δ
                                                                                                          뮍
                                                                                                                                                  Š
                                                                                                                                                                                               뮍
                                                                                                                                                                                                                               5
                                                                                                                                                                                                                                                                     뮍
                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ᅜ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local S
Matches 260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDIINE-21173698; PubMed=11259647;

Mierman W.C., Feldblyum T.V., Laub M.T., Paulsen I.T., Nelson K.E.,

Bisen J., Heidelberg J.F., Alley M.R.K., Ohta N., Maddock J.R.,

Potocka I., Nelson W.C., Newton A., Stephens C., Phacke N.D., Ely B.,

Potocka I., Nelson W.C., Newton A., Stephens C., Phacke N.D., Ely B.,

DeBoy R.T., Dodson R.J., Durkin A.S., Gwinn M.L., Haft D.H.,

Kolonay J.F., Smit J., Craven M.B., Khouri H., Shetty J., Berry K.,

Utterback T., Tran K., Wolf A., Vamathevan J., Ermolaeva M., White O.

Salzberg S.L., Venter J.C., Shapiro L., Fraser C.M.;

"Complete genome sequence of Caulobacter crescentus.";

Proc. Natl. Acad. Sci. U.S.A. 98:4136-4141(2001).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q9AAQ6;
01-JUN-2001 (TrEMBLrel. 17, Created)
01-JUN-2001 (TrEMBLrel. 17, Last sequence update)
01-MAR-2002 (TrEMBLrel. 20, Last annotation updat
Alpha-N-acetylglucosaminidase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Bacteria; Proteobacteria; Alphaproteobacteria; Caulobacterales; Caulobacteraceae; Caulobacter.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NCBI_TaxID=155892;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Caulobacter crescentus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE 770 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TIGR; CC0540; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   120
                                          527
                                                                                                                       468
                                                                                                                                                                                                   414
                                                                                                                                                                                                                                                                                  354
                                                                                                                                                                                                                                                                                                                      329
                                                                                                                                                                                                                                                                                                                                                                294
                                                                                                                                                                                                                                                                                                                                                                                                     300
                                                                                                                                                                                                                                                                                                                                                                                                                                               238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    180
  555
                                                                                                                                                           441
                                                                                                                                                                                                                                         389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      260;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LALGITQAEINEFFTGPAFLAWGRMGNIHTWDGPLPPSWHIKQLYLQHRVLDQMRSFGMT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFGLSEAELADYFSGPAFTPWHRMGNIEGYKAPLPTAWIDKKKDLQVKILGRMRSLGMT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ARVE-TPFRHRAYLNTCTYGYTTPWWGWGRWTREIDWMAAHGIDMPLAMEGQEYVWRALW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ELTEATPNRYRYYQNVCTQSYSFVWWDWARWEREIDWMALNGINLALAWSGQEAIWQRVY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EAVAVAAAVGVLLLAGAGGAAGDEAREAAAVRALVARLLGPGPAADFSVSVERALAAKPG
                                                                                                                                                                                                                                                                                                                                                                                                     IKEFGTDHIYGADTFNEMQPP-----SSEPSY-------LA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PVLPAFAGHVPEAVTRVFPQVNVTKMGSWGHFNCSYSCSFLLAPEDPIFFIIGSLFLREL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AERSWYAIGGKGGA-ISISGDSPVALVRGAYAHLRQAGLAHVSWEGDRVVQAGAVPAGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LDT--YSLGGGGAARVRVRGSTGVAAAAGLHRYLRDFCGCHVAWSGSQLRLPRPLPAVPG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     QAISLAAAAFVASPALAAGSTDG----VAAARASLKRLFGRRLAG-----AHLTVTPG
                                                                                                                                                                                                                               P-VYTRTASFQGQPFIWCMLHNFGGNHGLFGAL-----EAVNGGPEAARLFPNSTMVG
                                                                                                                                                                                                                                                                                  AYGKATYDSIRQTRPDÁVWVMQGWLFGADSHFWDPAATSAYLSLVPDDKLMILDIGNDRY
                                                                                                                                                                                                                                                                                                                                                              TETFGAGTYYLADSFNEMLPPINADGADARDAAYGDGTANTAVTKTKVEVDPALKAQRLA
                                                                                                                                                                                                                                                                                                                                                                                                                                               PILPAFGGYVPKAFAEKNPKARIYRMRPWEGFHETY----WLDPADPLFAKIAARFLALY 293
AFRYDLLDLTROAVQELVSLYYBEARSAYLSKELASLLRAGGVLAYELLPALDEVLASDS
                                          <u>AFSTRYWSPRWWKSKAGAYLFFKRPTATVGDFPQHPGDRAKLEAAVKALTALAPTYGQEP</u>
                                                                              VYNCSGEACRGHNRSP----LVRRPSLQMNTSIWY--NRSDVFEAWRLLLTSAPSLATSP
                                                                                                                       FGMFPEGLHNNSIVYEAVYDLAWSEGQASP-ATWLTRYARARYGKTSPALDAALGQLVEA
                                                                                                                                                           TGMAPEGISQNEVVYSLMAELGWRKDPVPDLAAWVTSFAARRYGVSHPDAGAAWRLLLRS
                                                                                                                                                                                                   PNVWKNAKAFGGKPWIYGYVHNYGGSNPVYGDLGFYRQDIPAIAANPDAGKL-----AG
                                                                                                                                                                                                                                                                                                                    AATTAVYEAMTAVDTEAVWLLQGWLFQHQPQFWGPAQIRAVLGAVPRGRLLVLDLFAESQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   19089 /
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   84287 MW; 94A694F41C18DB20 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CB15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         26.9%;
33.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9%; Score 1060.5; DB 16; Length
)%; Pred. No. 8.1e-69;
132; Mismatches 302; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    93;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                   467
                                                                                                                                                                                                                                                                                413
                                                                                                                                                                                                                                                                                                                        388
                                                                                                                                                                                                                                                                                                                                                                353
                                                                                                                                                                                                                                                                                                                                                                                                     328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 119
  614
                                          586
                                                                                                                       526
                                                                                                                                                             500
                                                                                                                                                                                                                                           440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      19;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT

OPENING

OPEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
S
                                        밁
                                                                          S
                                                                                                                    밁
                                                                                                                                                      S
                                                                                                                                                                                                   덩
                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                    á
                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local S
Matches 243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            investigating biology.";
Science 282:2012-2018(1998).
EMBL; Z83234; CAB70170.2; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Hypothetical protein. SEQUENCE 715 AA; 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
MEDLINE=99069613;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Submitted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   smye
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ×
  347
                                          298
                                                                                                                       238
                                                                                                                                                             232
                                                                                                                                                                                                     178
                                                                                                                                                                                                                                           172
                                                                                                                                                                                                                                                                                  118
                                                                                                                                                                                                                                                                                                                        112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  756
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 869
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               638
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            587
                                                                                                                                                                                                                                                                                                                                                                63
                                                                                                                                                                                                                                                                                                                                                                                                       60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                243;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       φ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  KTLIARI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VDLAKKI 730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (DEC-1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  762
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            82640 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              the
```

```
CONAP6

QNAP6;
QPAP6;
Q1-OCT-2000 (TrEMBLrel. 15, Created)
Q1-MAR-2003 (TrEMBLrel. 23, Last sequence update)
Q1-MAR-2003 (TrEMBLrel. 23, Last annotation updat
Hvmothetical protein K09E4.4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  K09E4.4.
Caenorhabditis elegans.
Eukaryota; Metazoa; Nematoda; Chromadorea;
Eukaryota; Deloderinae; Caenorhabditis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Genome sequence of the nematode
                                                                                                                                                                                                                               EIIWRDIFMGLGVQRDELDSYFTSQAYLAWHRMGNLKAYGGGLSDAQMLNDHNLAKRIID
                                                                                                                                                                                                                                                                                                                                                                                                                                  NG---FQLPKSGLAQIEINKSGRKTVTANTPTDALNAINTYLRTECLSQVSWSNSS--FS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PGLDTYSLGGGGAARVRVRGS-----TGVAAAAGLHRYLRDFCGCHVAWSGSQLRLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RFLLG-----SWLEQARAAAVSEAEADFYEQNSRYQLTLWGPEGNILDYANKQLAGLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LFVLDLTDATRHLATMKIDDLLQVAVAAYRRGDTA----AGDAARVEI-----EALALSI
WLLQGWLFQHQPQFWGPAQIRAVLGAVPRGRLLVLDLFAESQPVYTRTASFQGQPFIWCM
                                                                                      GSLFLRELIKEFGTD--HIYGADTFNEMQPPSS----EPSYLAAATTAVYEAMTAVDTEAV
                                                                                                                                                                                                                                                                               EAIWQRVYLALGLTQAEINEFFTGPAFLAWGRMGNLHTWDGPLPPSWHIKQLYLQHRVLD
                                                                                                                                                                                                                                                                                                                                                                                  RPLPAVPGELTEATPURYRYYQNVCTQSYSFVWWDWARWEREIDWMALNGINLALAWSGQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ALLILVICGA----ERARGALRVQLQDYDKNSWRSVLRRVAPEWVLEEFADVKVLSAAE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AVGVLLLAGAGGAAGDEAREAAAVR-----ALVARLLGPGPAADFSVSVERALAAK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KSFYLPRWSRFLDAL -- KAAGTGTFDEVTVTRGGVAWERAWVEAEVAYRREKPADFIGEI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ANYYTPRWRLFLEALVDSVAQGIPFQQHQFDKNVFQLEQAFVLSKQRY----PSQPRGDT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DKLLGVQPDTLATWIDEARAYGDTPADAAAYVANAKAQVTIWGGEGNLNDYASKAWQGLY
                                                GSTFLRHQKKMFGGDVTNMYSADPFNETLPSESAKFDAKFVKQTAQAIMNSCKKVDKNCV
                                                                                                                                        RLLELGITPILPTFÄGFVPDHLETLFPÄSKFNRLPRWNNFTSETSCMLSVSPFDPLFQKI
                                                                                                                                                                                      QMRSFGMTPVLPAFAGHVPEAVTRVFPQVNVTKMGSWGHFNCSYSCSFLLAPEDP1FP11
                                                                                                                                                                                                                                                                                                                                    SGCRKRTSDFINFESKQIRYFGNMCTFSYSFAWWEWPQWERFIDWIALNGFNTVLMPLGQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PubMed=9851916;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           26.1%; Score 1027.5; DB 5; Length 33.2%; Pred. No. 1.9e-66; tive 123; Mismatches 312; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           73CE7FFFD05CD995 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .elegans:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Rhabditida; Rhabditoidea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             platform
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             53;
                                                                                                                                                                                           291
                                                                                                                                                                                                                                                                                                                                      177
                                                                                                                                                                                                                                                                                                                                                                                                                                    117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    637
                                                357
                                                                                                346
                                                                                                                                                297
                                                                                                                                                                                                                                                                                         231
                                                                                                                                                                                                                                                                                                                                                                                       171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         697
                                                                                                                                                                                                                                           237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                15
```

```
SON SERVICE SE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 B
                                               Query Match
Best Local S
Matches 251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q8PPH7;
01-OCT-2002
01-OCT-2002
01-OCT-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Xanthomonas axonopodis (pv. citri).
Bacteria; Proteobacteria; Gammaproteobacteria; Xanthomonadales;
Xanthomonadaceae; Xanthomonas.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NCBI_TaxID=92829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     N-acetylglucosaminidase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q8PPH7
                                                                                                                                                       Nature
                                               Local Sir
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     642
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             703
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         702
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 586
                                                                                                                                        AE011700; AAM35598.1; -.
                 7
                                                                                                                                                     417:459-463 (2002)
                                                            Similarity
                                                                                                           proteome.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LHNFGGNHGLFGALEAVNGGPEAARLFPNSTMYGTGMAPEGISQNEVVYSLMAELGWRKD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WVLQSWSETYDQ--WPAWAIKSFLSAIPVGNLLILDLYAEVVPAWQMTSSFQGHHFVWCL
AAAVGVLLLAGAGGAAGDEAREAAAVRALVARLLGPGPAADESVSVERALAAKPGLDTYS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FQ-LEQAFVLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SRYQLTLWGPEGNILDYANKQLAGLVANYYTPRWRLFLEALVDSVAQGIPFQQHQFDKNV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TSIWYNRSDVFEAWRLLITS-APSLATSPAFRYDLLDLTRQAVQELVSLYYEEARSAYLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PLP-LNNWLKAYSESRYSADFKVAQKFWTLLAGTFYNQPEKWGTPRFSVFLYHRPGFGRK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PVPDLAAWVTSFAARRYGVSHPDAGAAWRILLRSVYNCSGEACRGHNRSPLVRRPSLQMN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LHNFGGSRELRGNLQKIDKGYQLALMKAGSNLVGAGLSMEAIDQNYVVYQFMIDRMWSPE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FRDVERPFSIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGDILTVWGPTGQNLDYAHREWAGLMSGYYGRRWQYF----CDWILEHDDFNHTEFSISV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MSEAFLMEDKQQVGA--SCEMLMEMFQKLESYSNRDVRQWIENAKSIAPTSEERQVFPVT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KELASLL----RAGGVLAYELLPALDEVLASDSRFLLGSWLEQARAAAVSEAEADFYEQN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IEYWFPVEETFSRFRELLPALVHVLGEHPLFREDLNDVMREMTQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (TrEMBLrel.
                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRELIMINARY,
                                                                                                           $
                                                                                                           89715 MW;
                                                            24.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     22,
                                               123;
                                             Score 962; DB
Pred. No. 1.4e-
23; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Created)
                                                                                                           EC60943F5A84A7BE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   798
                                               DB 16;
1.4e-61;
hes 295;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A
                                                                                                           CRC64;
                                                                          Length
                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEMGNEAALS
                                               Gaps
                   99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         702
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   415
   Q8XM24
Q8XM24
ID Q8XM2
ID Q8XM2
AC Q8XM2
DT 01-MA
DT 01-MA
DT 01-MA
DT 01-MA
CPE08
CPE08
CO CPE08
CO COST
RC STRAI
RC STRAI
RX PUBMAE
RA Shimi
                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                      맑
                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                            문
                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         묽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                   01-MAR-2002 (TrEMBLrel. 20, Created)
01-MAR-2002 (TrEMBLrel. 20, Last sequer
01-MAR-2003 (TrEMBLrel. 23, Last annote
01-MAR-2003 (TrEMBLrel. 23, Last annote
probable alpha-N-acetylglucosaminidase.
                                                                                                                                                                                                                                Q8XM24
   PubMed=11792842;
Shimizu T., Ohta
                                  STRAIN=13
                                                SEQUENCE FROM N.A.
                                                                            NCBI_TaxID=1502;
                                                                                                            Bacteria;
                                                                                                                                                                                                                   Q8XM24;
                                                                                               ostridium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  243
                                                                                                                                                                                                                                                                                                                                                                      692
                                                                                                                                                                                                                                                                                                                                                                                                                                                                604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        126
                                                                                                                                                                                                                                                                                                            752
                                                                                                                                                                                                                                                                                                                                         719
                                                                                                                                                                                                                                                                                                                                                                                                     663
                                                                                                                                                                                                                                                                                                                                                                                                                                   633
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 16
                                                                                                                                                                                                                                                                                                                                         P 719
                                                                                                                                                                                                                                                                                                            P 752
                                                                                                                                                                                                                                                                                                                                                                                                                                 RGLD-
                                  Туре
      Ohtani
                                                                                                                                                                                                                                   PRELIMINARY;
                                A
    ...
...
      Hirakawa
```

```
ASFQGQPFIWCMLHNFGGNHGLFG-----ALEAVNGGPEAARLFPNSTMVGTGMAPEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RSIAQVNPKATWVMQGWLFGADRQFWQAQAIAAFLGKVPDARLMVLDIGNDRYPGTWKAS
                                                                                                                                                                                                                          WQGMYADFYLQRWTRFLSAYRAARKAGTPFDAVAVDHQLATWERQWSAQDEMSKRQPPRE
                                                                                                                                                                                                                                                                                                                                                                            PALDEVLASDSRFLLGSWLEQARAAAVSEAE-ADFYEQNSRYQLTLWGPEGNILDYANKQ
                                                                                                                                                                                                                                                                                                                                                                                                                          ADAPLYRYDLIEDARHYLSLQADRQLQAVV-----QAYDAGDFA---RGDAQLARTTQLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATSPAFRYDLLD-----LTRQAVQELVSLYYEEARSAYLSKELASLLRAGGVLA--YELL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SPRWWNKRAGAYLLFKRPT------ADIVDFDDRPGDPQRLRRAIDALLRQANRY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACRGHNRSP----LVRRPSLQMNTSIWYNRSDVFE-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LHSNSVIYEYLYALAW-EGPQQSWSQWLTHYLRARYGRSDAALLSAWSDLEAGIYQTRYW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ISQNEVVYSLMAEIGWRKDPVPDLAAWVTSFAARRYGVSHPDAGAAWRLLLRSVYNCSGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RAFDNKQWIYGYVHNYGASNPLYGDFAFYRHDLQALLADPDKRNL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EAMTAVDTEAVWILIQGWIFQHQPQFWGPAQIRAVIGAVPRGRILIVIDIFAESQP-VYTRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GEFYLADAFNEMLPPVADDGSDVAAARYGDSIANSDAARAKAVPPAQRDARLAEYGQALY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DHIYGADTFNEMQPP-SSEPSYLAAAT-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AGYVPRAFAQAHPHARIYRMRAWEGFHETY----WLDPRDPLFAKLARRFLELYAQTYGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AGHVPEAVTRVFPQVNVTKMGSWGHFNCSYSCSFLLAPEDPIFPIIGSLFLRELIKEFGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QAEINEFFTGPAFLAWGRWGNLHTWDGPLPPSWHIKQLYLQHRVLDQWRSFGMTPVLPAF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PFAHRAYLNTCTYGYTTPFWDWPRWQREIDWMALHGIDMPLAMEGQEAIWQALWREFDVG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PNRYRYYQNVCTQSYSFVWWDWARWEREIDWMALNGINLALAWSGQEAIWQRVYLALGLT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IDAGGDT-VRIAGSSQVALARGAYAYLGQAGAASMSWEGDRVALPAQWPAYRSGQV--RT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LGGGGAARVRVRGSTGVAAAAGLHRYLRDFCGCHVAWSGSQLRLPRPLPAV-PGELTEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AVVLGALLATPVSVLA-----ASPAQAVVQRLIG-ARAAQFDMTV---APRGDGADWYR
                                                                                                                                                                                                                                                                           LAGIVANYYTERWRIFIEALVDSVAQGIFFQQHQFDKNVFQLEQAF----VLSKQRYFSQ
                                                                                                                                                                                                                                                                                                                                 <u>ADWTGQAAAAAGHDAGLRRAYVGNARAQVSVWGGDGNLADYASKA</u>
2104
A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -----RGFGVFPEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -AWRLLLTSAPSL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ---TAVY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          245
                                                                                                                                                                                                                                751
                                                                                                                                                                                                                                                                                   718
                                                                                                                                                                                                                                                                                                                                 691
                                                                                                                                                                                                                                                                                                                                                                                     662
                                                                                                                                                                                                                                                                                                                                                                                                                                     632
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           531
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   65
```

```
ostridium perfringens.
octeria; Firmicutes; Clostridia;
Ξ.
                                                                                                          Clostridiales;
 Ohshima
 <del>۲</del>
   Yamashita
                                                                                                          Clostridiaceae;
```

sequence up

update)

```
S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOUR BEARTS OF THE SOUR BEARTS O
                                                                             밁
                                                                                                                                                                              밁
                                                                                                                                                                                                                     5
                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                      5
                                                                                                                                                                                                                                                                                                                                                                                        문
                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            멂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                윰.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             B
RESULT
                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local S
Matches 214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Complete
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pfam; PF00754; F5_F8_type_C; 1.
Pfam; PF00041; fn3; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             InterPro; IPR002048; EF-hand.
InterPro; IPR000421; FA58_C.
InterPro; IPR003961; FN_III.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL; AP003188; BAB80572.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Proc. Natl. Acad.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  flesh-eater.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Shiba T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        "Complete genome sequence of Clostridium perfringens,
13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  493
                                                                             885
                                                                                                                                                                                 834
                                                                                                                                                                                                                                   658
                                                                                                                                                                                                                                                                                                                                      808
                                                                                                                                                                                                                                                                                                                                                                                           715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                208
                                                                                                                                                                                                                                                                                     774
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    214;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             32 VRALVARLIGPGPAADESVSVERALAAKPGLDTYSLGGGGAARVRVRGSTGVAAAAGLHR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SM00060; FN3; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FPNST-MVGTGMAPEGISQNEVVYSLMAELGWRKDPVPDLAAWVTSFAARRYGVSHPDAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VPRGRLLVLDLFAESQPVYTRTASFQGQPFIWCMLHNFGGNHGLFGALEAVNGGPEAARL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EPSYLAAATTA-----VYE----AMTAVDTEAVWLLQGWLFQHQPQFWGPAQIRAVLGA
                                                                             SDTDKLYPTEASNENLGELAKIAMESY
                                                                                                                                                                                                                        YANKQLAGIVANYYTERWRLF---LEALVDSVAQGIPFQQHQFDKNV--FQLEQAFVLSK 712
                                                                                                                                                                                                                                                                               LQERVLSTRPEFLIGNWIEDARTMLKDSDDWTKDLFEFNARALVTTWGSRNNADGGGLKD
                                                                                                                                                                                                                                                                                                                                    ALDEVLASDSRFLLGSWLEQARAAAVSEAE--ADFYEQNSRYQLTLWGPE----
                                                                                                                                                                                                                                                                                                                                                                                        KNYDEFKDSDAFLYDFADILKQLLANSAQEYYEVMCNAYNNGNGEKFKFVSGKF-LELIK
                                                                                                                                                                                                                                                                                                                                                                                                                                       TSAPSLATSPAFRYDLLDLTRQAVQELVSLYYEEARSAYLSKELASLLRAGGVLAYELLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DAWNIILDTAYKKRNDYYQGAAESIINARPGFGIKSASTWGHSKIVYDKSBFEKAIEIFA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAWRLLLRSVYNCSGEACRGHNRSPLVRRPSLQM-NTSIW-----YNRSDVFEAWRLLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LANSEHMVGIGITPEAINTNPLAHELLFDMAWTRDQI-NFRTWTEDYIERRYGKTNKEIL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TKKDQAMVLDLFSEVSPDWNRLEE-RDLPWIWNLHNFGGRMGMDAAPEKL--ATEIPKA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -----GGNTGDLDNGKIYEIIQNKMIEHDNDAVWVIQNW------QGNPSNNKLEGL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GHFNCSYSCSFLLAP----EDPIFPIIGSLFLRELIKEFG-TDHIYGADTFNEMQPPSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GFGGPLPNDWFEQRAELGRKMHDRWQSFGINPVLQGYSGMVPRDFKEKNPEAQTISQGGW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TWDGPLPPSWHIKQLYLQHRVLDQMRSFGMTPVLPAFAGHVPEAVTRVFPQVNVTKMGSW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                QYEEFLDWCAMNGVNLVLDIIGQEEVLRRTLNEFGYSDEEVKEFISGPAYFAWFYMQNMT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RWEREIDWMALNGINLALAWSGQEAIWQRVYLALGLTQAEINEFFTGPAFLAWGRMGNLH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       YLKNY---CNVSYNPIMGSNLKMPETMPSVGERVVIDTPYEYRYALNFCTYSYTMSFWDWD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         YLRDFCGCHVAWS----GSQLRLPRPLPAVPGELTEATPNRYRYYQNVCTQSYSFVWWDWA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IKNLVGRVIGEEFKDKFIFEIRDQL---NGNDVFEVSDSRDGKVLIKGNNGVSLASGFNY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              proteome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PS00018; EF_HAND; 1.
                                                                                                                                                                                 YSNRQWSGLTEDYYYARWEKWINGLQAELDGGAKA--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ogasawara N., Hattori M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2104 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                         -QRYPSQPRGDTVDLAKKIFLKYY 735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGFDRPDMLKTYVNEGEVDYFQNVADVFYEKQKEVFGDVTNFYGVDPFHE----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sci. U.S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          21.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        236010 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    138; Mismatches 309;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 854; DB 16;
Pred. No. 4.5e-53;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99:996-1001 (2002)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5FE345659599EED7 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Kuhara S., Hayashi
                                                                             911
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                 - PNIDWFKMEYDWVNKK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ж
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        anaerobic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              'Gaps
                                                                                                                                                                                                                                                                                                                                      GNILD
                                                                                                                                                                                                                                                                                                                                                                                           773
                                                                                                                                                                                                                                                                                                                                                                                                                                             604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        322
                                                                                                                                                                                                                                                                                       833
                                                                                                                                                                                                                                                                                                                                         657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               91
```

```
AC CONTRACTOR SENSE OF THE PROPERTY OF SENSE SENSE OF THE PROPERTY OF SENSE SE
                                           S
                                                                                                         밁
                                                                                                                                                  δ
                                                                                                                                                                                                                뫄
                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
밁
                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local S
Matches 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     InterPro; IPR001227; Ac_transferase.
InterPro; IPR000794; Ketoacyl-synt.
InterPro; IPR000794; Ketoacyl-synt.
InterPro; IPR006163; Pp_bind.
Pfam; PF00698; Acyl_transf; 1.
Pfam; PF00599; ketoacyl-synt; 1.
Pfam; PF00590; ketoacyl-synt; C; 1.
Pfam; PF00590; pp-binding; 1.
PROSITE; PS00500; pp-binding; 1.
PROSITE; PS00606; B_KETOACYL_SYNTHASE; 1.
PROSITE; PS00606; B_KETOACYL_SYNTHASE; 1.
PROSITE; PS00606; B_KETOACYL_SYNTHASE; 1.
PROSITE; PS00606; B_KETOACYL_SYNTHASE; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q93TW7;
Q93TW7;
01-DEC-2001
01-DEC-2001
01-OCT-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Stigmatella aurantiaca.
Bacteria; Proteobacteria; Deltaproteobacteria; Myxococcales;
Cystobacterineae; Cystobacteraceae; Stigmatella.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   myxobacterium Stigmatella aurantiaca
Chem. Biol. 8:59-69(2001).
EMBL; AF319998; AAK57189.1; -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Silakowski B., Nordsiek G., Kunze B., Blocker H., Muller R.; "Novel features in a combined polyketide synthase/non-ribosomal peptide synthetase: the myxalamid biosynthetic gene cluster of myxobacterium Stigmatella aurantiaca Sgal5.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A. MEDLINE=21110452; PubMed=11182319;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NCBI_TaxID=41;
                                                                                                            1353
                                                                                                                                                                                                                     1295
                                                                                                                                                                                                                                                                                                                                                                                                                                           1183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1082
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1022
                                                                                                                                                                                                                                                                                                                            1243
                                                                                                                                                                                                                                                                                                                                                                                    251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       962
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 180;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            w
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           h 3.6%; Score 143.5;
Similarity 22.3%; Pred. No. 0.35
90; Conservative 79; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DTYSLGGGGAA-----RVRVRGSTGVAAAAGLHRYLRDFCGCHVAWSGSQLRLPR-
APER--VAESTAAVLRE----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GLQTLALALAAESGEAV---LEMPLSIGSLECVQ---GRADVKWAHVSIAAATSPEDRMG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NVQYEAPLRTLGEAWRRPGEALGAVALSPEVIQ------ESARYQLHPALLD-A 1128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HIHSRAVGGTSPGAGWVRHCRGQIRAANTPSGSPEVLDAVRSRCAQHVQGAAVYEQLERC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AVVPASALVELGLSAAAEALGAGARELSDVEFERALVLTEADRRLVQVHLSPASGGQHVF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AVAVAAAVGVILLIAGAGGAAGDEAREAAAVRALVARLLGPGPAADFSVSVERALAAKPGL
                                                    FAESQPVYTRTASFQGQPFIWCMLHNFGGNHGLFGALE---
                                                                                                                                                                                                                     ERLIREIPALPAGHEGRAVYLWGLDAVLDEQTGTPESS--VAALHLVKALMGSPARARLW
                                                                                                                                                                                                                                                                          SLFLRELI-----KEFGTDHIYGADTFNEMQPPSSEPSYLAAATTAVYEAM---
                                                                                                                                                                                                                                                                                                                            WLV-----FLDRGGWGTALVEEIGRQGQPCVTVTAGETFQRQDARRFVVNPKRPEDM
                                                                                                                                                                                                                                                                                                                                                                                    EAVTRVFPQVNVTKMGSWGHF-----
                                                                                                                                                                                                                                                                                                                                                                                                                                           TLELLDGEGRRVAVARGVRLRRVAAERLLEVLGEARSQEWFHDVTWEPRPAVTAQPGPAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NLHTWDG-----FLPPSWHIKQLYLQH--RVLDQMRS-----FGMTPVLPAFAGHVP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ALNGINLALAWSGQEAIWQRVYLALGITQAEINEFFTGPAFLAWG------RMG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ----PLPAV-----PGELTEATPNRYRYYQNVCTQSYSFVWWDWARWERE---IDWM
                                                                                                            VVTRGAQVTGVGTERVSLAQAPLWGMGRSVSLEQPGVWGG-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (TrEMBLrel. (TrEMBLrel. (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRELIMINARY;
                                                                                                                                                        TAVDTEAVWLLQGWLF-----QHQPQFWGPAQIRAVLGAVPRGRLLVLDL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       19,
19,
22,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Created)
-ISAFGGDGEDQIALREKRSLVPRIARGRVNAPAEPLR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                E809DCEC6A320144
                                                                                                                                                                                                                                                                                                                                                                                       -NCSYSCSFLLAPE---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ۳
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .35;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    289;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CRC64;
                                                       -----AVNGGPEAAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    259;
                                                                                                                                                                                                                                                                                                                                                                                       -DPIFPIIG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
     1448
                                                          431
                                                                                                               1396
                                                                                                                                                                                                                     1352
                                                                                                                                                                                                                                                                                                                                  1294
                                                                                                                                                                                                                                                                                                                                                                                                                                              1242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1021
                                                                                                                                                                    383
                                                                                                                                                                                                                                                                                                                                                                                       292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   250
                                                                                                                                                                                                                                                                             338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               62
```

```
RESULT
Q96W93
                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local 9
                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   01-DEC-2001
01-DEC-2001
01-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                        Pfam; PFO
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE=21318682; PubMed=11425709; Lee T., Oh D.W., Kim H.S., Lee J., Kim Y.H., Yun S.H., Lee "Identification of Deoxynivalenol- and Nivalenol-Producing of Gibberella zeee by Using PCR."; Appl. Environ. Microbiol. 67:2966-2972(2001).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Hypocreales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eukaryota;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gibberella
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q96W93
                                                                                                                                                                                                                                                                                                                                                                                                     nterPro; IPR005152; LIP.
ofam; PF03583; LIP; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CBI_TaxID=5518;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1562
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1518
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            432
               428
                                          184
                                                                      372
                                                                                                 126
                                                                                                                              329
                                                                                                                                                                                                                                                                                                    157
                                                                                                                                                                                     272
                                                                                                                                                                                                                                              216
                                                                                                                                                          66
                                                                                                                                                                                                                 30
                                                                                                                                                                                                                                                                         l Similarity
97; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LRPDGAYLVTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VDVADREKLAALLREAAATL-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TSPAFRYDLIDLTROAVOELVSLYYEEARSAYLSKELASLLRAGGVLAYELLPALDEVLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAWRLLLRSVYNCSGEACRGHNRSPLVRRPSLQMNTSIWYNRSDVFEAWRLLLISAPSLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LFPNSTMVGTGMAPEGISQNEVVYSLMAELGWRKDPVPDLAAWVTSFAARRYGVSHPDAG
                                                                                                                                                                                                                                                                                                    MALNGINLALA-WSGQEAIWQRVYLALGLTQAEINEFFTGPAFLAWGRMGNLHTWDGPLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LVANYYTPRWRLFLEALV-DSVAQGIP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AMTAMMRPKVLGSWVLHEVTR-----EAELDFFVMFSSTS-TLWGASG-LAHYA----AG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SDSRFL---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ---VLLGRSGASGAGDAASARREGI---
            EAARLFPNSTMVGTGMAPEGISONEVVYSLMAELGWRKDPVPDLAAWVTSFAARRYGVSH
                                                                                                 SPSNTMYTASAISSIYYEAA-LAEG-IFVSVPDYEGPSAAFTAGIISGYATLDSIRAVLS
                                                                                                                             AATTAVY--EAMTAVDTEAVWLLQGWLFQHQPQFWGPA---
                                                                                                                                                        NCSYSCSFLLAPEDPIFP---IIGSLFLRELIKEFGTDHIYGADTFNEMQPPSSEPSYLA
                                                                                                                                                                                                                                            PS---WHIKQLYLQHRVLDQMRSFGMTPVLPAFAGHVPEAVTRVFPQV-NVTKMGSWGHF
                                                                                                                                                                                                                                                                         MALDRILFILSIWIG-----FVGAAQAALSE--
                                                                      AVPRGRLLVLDLFAESQPVYTRTASFQGQPFIWCMLHNFGGNHGLFG---ALE-AVNGGP
                                          -----LGLGFNMTNTPSVA-----LW----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Fungi; Ascomycota; Pezizomycotina; Sordariomycetes;
s; Nectriaceae; Gibberella.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        zeae (Fusarium graminearum)
                                                                                                                                                                                                                                                                                                                                                                                          444 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRELIMINARY,
                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -NOFLEALAHHRRAQGLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -LGSWL--EQARAAAVSEAEADFYEQNSRYQLTLWGPEGNILDYANKQLAG
                                                                                                                                                                                                                                                                                                                                                                                     1.
47659 MW;
                                                                                                                                                                                                                                                                                                                                              3.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 19,
19,
21,
                                                                                                                                                                                                                                                                                                                                 54;
                                                                                                                                                                                                                                                                                                                                Score 128; DB
Pred. No. 0.57
54; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Last sequence update)
Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRT;
                                                                                                                                                                                                                                                                                                                                                                                          BC5208C72484C701 CRC64;
                                                                                                                                                                                                               ----PGFENAEPGTVLRVRPAPGNLTSVTG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ·LGGLGLK-----VARWLVARGARHL-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1627
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             444
••
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -----PPLRGVIHAAALLTESNLENMD--LA
                                                                                                                                                                                                                                                                                                                                               DB 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    update)
                                                                                                                                                                                                                                                                                                                                   160;
                                                                                                                                                                                                                                                                                                                                                             Length 444;
                                            -GYSGGAFATEWASELAVQYAP
                                                                                                                                                                                                                                                                                                                                 Indels
 ::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ESLRALGASVITLA
                                                                                                                                                                                                                                                                                                                                 166;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Y.W.;
Chemotypes
                                                                                                                                ----QIRAVLG
                                                                                                                                                                                                                                                                            ----PLP
                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                491
                                                                                                                                                          125
                                                                                                                                371
                487
                                             220
                                                                         427
                                                                                                    183
                                                                                                                                                                                       328
                                                                                                                                                                                                                    65
                                                                                                                                                                                                                                               271
                                                                                                                                                                                                                                                                           29
                                                                                                                                                                                                                                                                                                      215
                                                                                                                                                                                                                                                                                                                                   24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
    片
                           Ś
```

SORRETTE SERVICE SERVI

밁 Š 밁 Ś 밁 Ś 밁 S

Ś 밁 S 밁 Š. 臣 Š 밁 5 문 Ś 밁 S

```
SAN SELECTION OF S
                                                                                                Query Match
Best Local S
Matches 141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   01-MAR-2001 (TrEMBLrel. 16, Created)
01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
Putative DNA-binding protein.
SCO7844 OR SCO0003 OR SCBE7.41C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q9FBV4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE=21996410; PubMed=12000953;

MEDLINE=21996410; PubMed=12000953;

BentLey S.D., Chatter K.F., Cerdeno-Tarraga A.-M., Challis G.L.,

Thomson N.R., James K.D., Harris D.E., Quail M.A., Kleser H.,

Harper D., Batteman A., Brown S., Chandra G., Chen C.W., Collins M.,

Cronin A., Fraser A., Goble A., Hidalgo J., Hornsby T., Howarth S.,

Huang C.-H., Kleser T., Larke L., Murphy L., Oliver K., O'Neil S.,

Rabbinowitsch E., Rajandream M.A., Rutter Grad K., Rutter S.,

Seeger K., Saunders D., Sharp S., Squares R., Squares S., Taylor K.,

Marren T., Wietzorrek A., Woodward J., Barrell B.G., Parkhill J.,
                                                                                                                                                                                                                                                                                                                                                         "Complete genome sequence coelicolor A3(2).";
Nature 417:141-147(2002).
                                                                                                                                                                                                       InterPro; IPR005114; Helicase_ass.
Pfam; Pf03457; HA; 6.
Hypothetical protein; DNA-binding; Complete proteome.
SEQUENCE 783 AA; 86432 MW; 545B5563958D5EDF CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Kinashi H., Hopwood D.A.;
"A set of ordered cosmids and a detailed genetic and the 8 Mb Streptomyces coelicolor A3(2) chromosome.";
Mol. Microbiol. 21:77-96(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE=97000351; PubMed=8843436; Redenbach M., Kieser H.M., Denapaite
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Submitted (AUG-2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Submitted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Brown S.P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STRAIN=A3(2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Bacteria; Actinobacteria; Actinobacteridae; Actinomycetales;
Streptomycineae; Streptomycetaceae; Streptomyces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Streptomyces coelicolor.
                                                                                                                                                                                                                                                                                                        EMBL; AL939132; CAC03662.1; -.
EMBL; AL939104; CAD30877.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Thomson
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STRAIN=A3(2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                   Local Sim thes 141;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TaxID=1902;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          221
43
                                                 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  z
                                                                                                                            Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PSIATSPAFRYDLIDLTRQAVQELVSLYYEEARSAYLSKELASLLRAGGVLAYELLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PDAGAAWRLLLRSVYNCSGEACRGHNRSPLVRRPSLQMNTSIWYNRSDVFEAWRLLLTSA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ELVA----GPVVGAAMGAPLANITSIMYDVNG--GPTSGPTPNMLLGLT---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FROM N.A
                                               VAVAAAVGVLLLAGAGGAAGDEAREAAAVRALVARLLGPGPAADFSVSVERALAAKP---
LSAMAGPGVRGVWGRGCLVG-EVFLASAVRHQLASIC--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .
.
.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (AUG-2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Harris
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Parkhill J.,
G-2000) to th
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -GVAFSKIDINK-----YFQKGTDIFSDPEITALVNREGVMGYHGTP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 U
                                                                                                                            3.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      J., Barrell B.G., Rajandream M.A.;
the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        the
                                                                                                                                                                                                                                                                                                                                                                                                                    윩
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL/GenBank/DDBJ
                                                                                                   Score 124.5; D
Pred. No. 2.4;
59; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                    the
                                                                                                                                                                                                                                                                                                                                                                                                                    model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ;
u
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   783
                                                                                                                                                                                                                                                                                                                                                                                                                    actinomycete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ጅ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eichner
                                                                                                                                                        DB 16;
                                                                                                         249;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -LINDSOYNKTOFLAAEGYTITEA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Α.
                                                                                                         Indels
                                                                                                                                                     Length
                                                                                                                                                                                                                                                                                                                                                                                                                      Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     physical map
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Cullum
     -- QVSESHLSRALPSWD
                                                                                                         233;
                                                                                                                                                             783;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Taylor K.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .
.
                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            YOV-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               266
        93
                                                          60
                                                                                                           3
```

469 611 529	428 551	444 393	384 362	328 310	268 284	208 259	148 212	104 154	61 94
LHEQCSRYDDLHVGQQRLLADLGIRPAHARSAHPRRKSLALAFAAGLDYARAFAAVHGHL 528 ASDSRFILGSWLEQARA-AAVSEAEAD 636	GAAWRILLERSVYNCSGEACKGHNKSELVKKESLQWNTSIWINKSUVEEAWRILLITSAESI 500		FAESQPVYTRTASFQGQPFIWCMLHNFGGNHGLFGALEAVNGGPEAARLFPNSTMVGTGM 443	AAATTAVYEAMTAVDTEAVWLLQGWLFQHQPQFWGPAQIRAVLGAVPRGRLLVLDL 383	WGHFNCSYSCSFLLAPEDPIFPIIGSLFLRELIKEFGTDHIYGADTFNEMQPPSSEPSYL 327	HTWDGPLPPSWHIKQLYLQHRVLDQMRSFGMTPVLPAFAGHVPEAVTRVFPQVNVTKMGS 267	ARWEREIDWMALNGINLALAWSGQEAIWQRVYLALGLTQAEINEFFTGPAFLAWGRMGNL 207	SGSQLRLPRPLPAVPGELTEA-TPNRYRYYQNVCTQSYSFVWWDW 147	-GLDTYSLGGGGAARVRVRGSTGVAAAAGLHRYLRD-FCGCHVAW 103

Qy Db

Ş

망

D D

B 5

Search completed: February 13, 2004, 16:17:37 Job time : 70 secs

```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                          113
107.5
107.5
107.5
107.5
105
105
104.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       seq length: 0
seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Issued Patents AA:*
1: /cgn2_6/ptodata/2
2: /cgn2_6/ptodata/2
3: /cgn2_6/ptodata/2
4: /cgn2_6/ptodata/2
5: /cgn2_6/ptodata/2
6: /cgn2_6/ptodata/2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query
Match Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             February 13, 2004, 16:14:55 ; Search time 22 Seconds (without alignments) 1428.953 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           328717 seqs, 42310858 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-836-613-2
3939
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 MEAVAVAAAVGVLLLAGAGG......VDLAKKIFLKYYPGWVAGSW 743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /cgn2_6/ptodata/2/iaa/5A_COMB.pep:*
/cgn2_6/ptodata/2/iaa/5B_COMB.pep:*
/cgn2_6/ptodata/2/iaa/6A_COMB.pep:*
/cgn2_6/ptodata/2/iaa/6COMB.pep:*
/cgn2_6/ptodata/2/iaa/BCTUS_COMB.pep:*
/cgn2_6/ptodata/2/iaa/backfiles1.pep:*
         3340
34740
34740
11665
17029
170257
170257
170257
170257
170257
170257
170257
170257
170257
170257
170257
170257
170257
170257
170257
170257
170257
170257
170257
170257
170257
170257
170257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GenCore version 5.1.6 (c) 1993 - 2004 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BB
                                                                                          US-09-252-991A-23568
US-08-804-227C-2
US-09-858-664A-2
US-09-858-664A-2
US-09-858-664A-2
US-09-858-102-5
US-09-568-102-5
US-09-568-486-5
US-09-568-486-5
US-09-568-486-5
US-09-568-486-5
US-09-568-480-5
US-09-252-991A-33024
US-09-252-991A-33024
US-09-075-272-4
US-09-075-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SUMMARIES
Sequence 2, Appli
Sequence 5, Appli
Sequence 6, Appli
Sequence 3, Appli
Sequence 3, Appli
Sequence 18711, A
Sequence 18711, A
Sequence 2, Appli
Sequence 4, Appli
Sequence 6, Appli
Sequence 6, Appli
Sequence 8, Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Description
```

2.6 581 3 US-09-221-245 2.6 581 3 US-09-221-528 2.6 581 3 US-09-221-528 2.6 581 3 US-09-221-528 2.6 581 3 US-09-221-237 2.6 681 3 US-09-221-237 2.6 667 3 US-09-617-537 2.6 677 4 US-09-606-304 2.6 677 4 US-09-606-304 2.6 1197 4 US-09-606-304 2.6 1197 4 US-09-606-304 2.6 3519 3 US-09-252-991A 2.6 3515 3 US-09-105-537 2.6 5215 3 US-09-105-537 2.6 5215 3 US-09-128-517 2.6 5268 3 US-09-128-517 2.6 5268 3 US-09-105-537 2.6 5268 4 US-09-252-991A 2.5 588 4 US-09-252-991A 2.5 1333 1 US-08-056-1388	2.6 581 3 US-09-221 2.6 681 3 US-09-221 2.6 677 4 US-09-606 2.6 1197 3 US-08-836 2.6 1197 3 US-09-252 2.6 2628 3 US-09-105 2.6 2628 3 US-09-105 2.6 2628 3 US-09-252 2.5 588 4 US-09-252 2.5 1323 1 US-08-252	45	44	43	42	41	40	9	38	37	9	ω S	3 4	(J)	32	L L	30	29	0
.6 581 3 US-09-221 .6 581 3 US-09-221 .6 581 3 US-09-231 .6 581 3 US-09-231 .6 6 581 3 US-09-221 .6 6 677 3 US-08-836 .6 1197 3 US-08-836 .6 1197 4 US-09-606 .6 1197 4 US-09-606 .6 5215 3 US-09-428 .6 5215 3 US-09-428 .6 5288 4 US-09-425 .5 588 4 US-09-252	.6 581 3 US-09-221-245-8 .6 581 3 US-09-163-115-8 .6 581 3 US-09-221-528-8 .6 581 3 US-09-593-553-8 .6 581 3 US-09-593-553-8 .6 681 4 US-09-593-557-8 .6 677 3 US-08-836-567-2 .6 1197 3 US-08-836-567-2 .6 1197 4 US-09-606-304-12 .6 2457 4 US-09-606-304-12 .6 3519 3 US-08-8252-991A-25671 .6 2628 3 US-09-488-517-4 .6 5215 3 US-09-488-517-4 .6 5215 3 US-09-105-537-2 .6 2628 3 US-09-105-537-2 .6 2628 3 US-09-105-537-2 .6 2628 3 US-09-135-814-11 .6 3519 3 US-09-135-814-11 .6 3519 3 US-09-135-1388-4	100	100	.100	100.5	101	101	\vdash	104	104	104	104	104	104	104	104	104	104	F
3 US-09-221 3 US-09-221 3 US-09-221 3 US-09-221 3 US-09-221 4 US-09-836 4 US-09-606 3 US-09-606 4 US-09-252 3 US-09-105 3 US-09-125 3 US-09-413 3 US-09-425 4 US-09-425 4 US-09-425	3 US-09-221-245-8 3 US-09-221-528-8 3 US-09-221-528-8 3 US-09-593-553-8 3 US-09-221-237-8 4 US-09-221-237-8 4 US-09-221-237-8 4 US-09-266-304-2 4 US-09-666-304-2 4 US-09-666-304-2 4 US-09-666-304-12 4 US-09-666-304-12 4 US-09-252-991A-25671 3 US-09-428-517-2 3 US-09-413-814-11 4 US-09-252-991A-20467 4 US-09-252-991A-31356 1 US-09-252-991A-31356							_	_	_									
US-09-252 US-09-253 US-09-253 US-09-252 US-09-606 US-09-606 US-09-606 US-09-408 US-09-428 US-09-428 US-09-428 US-09-428 US-09-428 US-09-428 US-09-428	US-09-221-245-8 US-09-163-115-8 US-09-153-153-8 US-09-253-553-8 US-09-251-237-8 US-09-2617-594A-4 US-08-836-567-2 US-08-836-567-12 US-09-606-304-12 US-09-606-304-12 US-09-252-991A-25671 US-09-428-517-4 US-09-428-517-4 US-09-428-517-4 US-09-428-517-4 US-09-428-517-4 US-09-428-517-4 US-09-43-814-11 US-09-252-991A-20467 US-09-252-991A-31356 US-09-252-991A-31356	N	588	425	2628	5215	3519	2457	1197	1197	677	677	668	581	581	581	581	581	
-09-221 -09-221 -09-221 -09-521 -09-521 -09-636 -09-253 -09-253	-09-221-245-8 -09-221-235-8 -09-221-237-8 -09-593-553-8 -09-593-553-8 -09-606-304-2 -08-836-567-2 -09-606-304-2 -09-252-991A-25671 -09-252-991A-25671 -09-413-814-11 -09-413-814-11 -09-252-991A-31356 -08-026-138E-4	ب	4	4	ω	ω	w	4	4	ω	4	W	4	W	ω	ω	ω	w	ι
	Sequence	US-08-026-138E-4	-09-252	-09-252	-09-413	-09-105	-09-428	-09-252	-09-606	-08-836	-09-606	-08-836	-09	-09-221-237-	-09-593-553-	-09-221-528-	-09-163-115-	-09-221-245-	C . E E F . F C

ALIGNMENTS

COUMINI. ZIP: 11530 COMPUTER READABLE FORM: MEDIUM TYPE: Floppy disk COMPUTER: Floppy disk COMPUTER: IBM pc compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: Patentin Release #1.0, Version #1. CURRENT APPLICATION DATA: APPLICATION NUMBER: US/09/077,354B FILING DATE: 22-APRIL-1999 PRIOR APPLICATION NUMBER: PCT/US96/00747 FILING DATE: 22-NOV-1996 ATTORNEY/AGENT INFORMATION: NAME: POKALSKY, ANN R. REGISTRATION NUMBER: 34,697 REFERENCE/DOCKET NUMBER: 12416 TELEOMOMUNICATION INFORMATION: TELEPHONE: 516 742 4343 TELEPHONE: 516 742 4366 INFORMATION FOR SEQ ID NO: 2: SEQUENCE CHARACTERISTICS: LENGTH: 743 amino acids TYPE: amino acids TYPE: amino acids TYPE: protein Sequence 2, Application US/09077354B Patent No. 6255096 GENERAL INFORMATION: FEATURE: NAME/KEY: LOCATION: FEATURE: NAME/KEY: LOCATION: FEATURE: NAME/KEY: LOCATION: APPLICANT: HOPWOOD, JOHN JOSEPH; SCOTT, HAMISH STEELE; APPLICANT: WEBER, BIRGIT; BLANCH, LIANNE; ANSON, DONALD STEWART TITLE OF INVENTION: SYNTHETIC MAMMALIAN TITLE OF INVENTION: '-N-ACETYLGLUCOSAMINIDASE AND GENETIC SEQUENCES ENCODING NUMBER OF SEQUENCES: 6 CORRESPONDENCE ADDRESS: ADDRESSEE: SCULLY, SCOTT, MURPHY & PRESSER STREET: 400 GARDEN CITY PLAZA CITY: GARDEN CITY NEW YORK : UNITED STATES Potentially-glycosylated Asn site 435 Potentially-glycosylated Asn site, 261 Potentially-glycosylated 272 Asn site #1. SAME

```
FEATURE:
NAME/KEY:
LOCATION:
US-09-077-354B-2
                                                                                                                                                                                                                                                                                                                                                                  밁
RESULT 2
US-09-252-991A-23568
                                                      Ś
                                                                             밁
                                                                                               Š
                                                                                                                    В
                                                                                                                                  5
                                                                                                                                                           Вb
                                                                                                                                                                           Ś
                                                                                                                                                                                                 밁
                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                         B
                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                 돲
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                       片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 100.0%;
Best Local Similarity 100.0%;
Matches 743; Conservative 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURE:
NAME/KEY:
LOCATION:
FEATURE:
NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURE:
NAME/KEY:
LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LOCATION:
                                                                                                                                                                                                                                           421
                                                                                                                                                                                                                                                                                   361
                                                                                                                                                                                                                                                                                                      361
                                                                                                                                                                                                                                                                                                                          301
                                                                                                                                                                                                                                                                                                                                             301
                                                                                                                                                                                                                                                                                                                                                                 241
                                                                                                                                                                                                                                                                                                                                                                                                         181
                                                     721
                                                                             661
                                                                                                  661
                                                                                                                     601
                                                                                                                                       601
                                                                                                                                                            541
                                                                                                                                                                               541
                                                                                                                                                                                                  481
                                                                                                                                                                                                                       481
                                                                                                                                                                                                                                                              421
                                                                                                                                                                                                                                                                                                                                                                                    241
                                                                                                                                                                                                                                                                                                                                                                                                                            181
                                                                                                                                                                                                                                                                                                                                                                                                                                                 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    121
                                      721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GDTVDLAKKIFLKYYPGWVAGSW 743
                                                                                                                                       ELLPALDEVIASDSRFLLGSWLEQARAAAVSEAEADFYEQNSRYQLTLWGPEGNILDYAN
                                                                                                                                                                         RLLLTSAPSLATSPAFRYDLLDLTRQAVQELVSLYYEEARSAYLSKELASLLRAGGVLAY
                                                                                                                                                                                                     RRYGVSHPDAGAAWRLLLRSVYNCSGEACRGHNRSPLVRRPSLQMNTSIWYNRSDVFEAW
                                                                                                                                                                                                                RRYGVSHPDAGAAWRLLLRSVYNCSGEACRGHNRSPLVRRPSLQMNTSIWYNRSDVFEAW
                                                                                                                                                                                                                                           EAVNGGPEAARLFPNSTMVGTGMAPEGISQNEVVYSLMAELGWRKDPVPDLAAWVTSFAA
                                                                                                                                                                                                                                                              EAVNGGPEAARLFPNSTMVGTGMAPEGISQNEVVYSLMAELGWRKDPVPDLAAWVTSFAA
                                                                                                                                                                                                                                                                                                  WGPAQIRAVLGAVPRGRLLVLDLFAESQPVYTRTASFQGQPFIWCMLHNFGGNHGLFGAL
                                                                                                                                                                                                                                                                                                                          KEFGTDHIYGADTFNEMQPPSSEPSYLAAATTAVYEAMTAVDTEAVWLLQGWLFQHQPQF
                                                                                                                                                                                                                                                                                                                                            KEFGTDHIYGADTENEMQPPSSEPSYLAAATTAVYEAMTAVDTEAVWLLQGWLFQHQPQF
                                                                                                                                                                                                                                                                                                                                                                  VLPAFAGHVPEAVTRVFPQVNVTKMGSWGHFNCSYSCSFLLAPEDPIFPIIGSLFLRELI
                                                                                                                                                                                                                                                                                                                                                                                VLPAFAGHVPEAVTRVFPQVNVTKMGSWGHFNCSYSCSFLLAPEDPIFPIIGSLFLRELI
                                                                                                                                                                                                                                                                                                                                                                                                         ALGLTQAEINEFFTGPAFLAWGRMGNLHTWDGPLPPSWHIKQLYLQHRVLDQMRSFGMTP
                                                                                                                                                                                                                                                                                                                                                                                                                            ALGLTQAEINEFFTGPAFLAWGRMGNLHTWDGPLPPSWHIKQLYLQHRVLDQMRSFGMTP
                                                                                                                                                                                                                                                                                                                                                                                                                                                           LTEATPNRYRYYONVCTOSYSFVWWDWARWEREIDWWALNGINLALAWSGOEAIWORVYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GLDTYSLGGGGAARVRVRGSTGVAAAAGLHRYLRDFCGCHVAWSGSQLRLPRPLPAVPGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GLDTYSLGGGGAARVRVRGSTGVAAAAGLHRYLRDFCGCHVAWSGSQLRLPRPLPAVPGE
                                                                              KQLAGLVANYYTPRWRLFLEALVDSVAQGIPFQQHQFDKNVFQLEQAFVLSKQRYPSQPR
                                                                                          KQLAGLVANYYTERWRLFLEALVDSVAQGIPFQQHQFDKNVFQLEQAFVLSKQRYPSQPR
                                                                                                                     ELLPALDEVLASDSRFLLGSWLEQARAAAVSEAEADFYEQNSRYQLTLWGPEGNILDYAN
                                                                                                                                                            RLLLTSAPSLATSPAFRYDLLDLTRQAVQELVSLYYEEARSAYLSKELASLLRAGGVLAY
                                                                                                                                                                                                                                                                                   WGPAQIRAVLGAVPRGRLLVLDLFAESQPVYTRTASFQGQPFIWCMLHNFGGNHGLFGAL
                                                                                                                                                                                                                                                                                                                                                                                                                                               LTEATPNRYRYYQNVCTQSYSFVWWDWARWEREIDWMALNGINLALAWSGQEAIWQRVYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Potentially-glycosylated 503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Potentially-glycosylated 532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Potentially-glycosylated 526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Potentially-glycosylated 513
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 3939;
Pred. No. 0;
0; Mismatches
                                       743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Asn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Asn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Asn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Asn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  site
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Site
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              site,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           site,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           띪
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         w
-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                             240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            120
                                                                               720
                                                                                                  720
                                                                                                                      660
                                                                                                                                                                                600
                                                                                                                                                                                                     540
                                                                                                                                                                                                                        540
                                                                                                                                                                                                                                           480
                                                                                                                                                                                                                                                               480
                                                                                                                                                                                                                                                                                   420
                                                                                                                                                                                                                                                                                                       420
                                                                                                                                                                                                                                                                                                                           360
                                                                                                                                                                                                                                                                                                                                               360
                                                                                                                                                                                                                                                                                                                                                                  300
                                                                                                                                                                                                                                                                                                                                                                                     300
                                                                                                                                                                                                                                                                                                                                                                                                         240
                                                                                                                                                                                                                                                                                                                                                                                                                                                  180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   60
                                                                                                                                        660
                                                                                                                                                             600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                      : 🕏
δ
                   밁
                                     Ś
                                                                          δ
                                                                                                밁
                                                                                                                  8
                                                                                                                                      당
                                                                                                                                                        5
                                                                                                                                                                               片
                                                                                                                                                                                               Ś
                                                                                                                                                                                                                       ᅜ
                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                               맑
                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                       문
                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                             맑
                                                                                                                                                                                                                                                                                                                                                                ş
                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    문
                                                           片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local
                                                                                                                                         1452
                                                                                                                                                                                1401
                                                                                                                                                                                                                         1341
                                                                                                                                                                                                                                                                                                       1256
                                                                                                                                                                                                                                                                                                                                               1196
                                                                                                                                                                                                                                                                                                                                                                                     1157
                                                                                                                                                                                                                                                                                                                                                                                                                             1107
                                                                                                   1506
                                                                                                                                                                                                                                                                1296
                                                            1566
                                                                               506
                                                                                                                      471
                                                                                                                                                             415
                                                                                                                                                                                                     363
                                                                                                                                                                                                                                           318
                                                                                                                                                                                                                                                                                    266
                                                                                                                                                                                                                                                                                                                                                                  154
                                                                                                                                                                                                                                                                                                                           206
                                                                                                                                                                                                                                                                                                                                                                                                         96
                                                                                                                                                                                                                                                                                                                                                                                                                                                 41
```

```
PRIOR APPLICATION NUMBER: US 60/074,788
PRIOR FILING DATE: 1998-02-18
PRIOR APPLICATION NUMBER: US 60/094,190
PRIOR FILING DATE: 1998-07-27
NUMBER OF SEQ ID NOS: 33142
SEQ ID NO 23568
LENGTH: 3340
TYPE: PRI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; ORGANISM: Pseudomonas
US-09-252-991A-23568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 23568, Application US/09252991A
Patent No. 6551795
GENERAL INFORMATION:
APPLICANT: Marc J. Rubenfield et al.
TITLE OF INVENTION: AUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO PSEUDOMONAS
TITLE OF INVENTION: AUCUENCA FOR DIAGNOSTICS AND THERAPEUTICS
FILE REFERENCE: 107196.136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CURRENT APPLICATION NUMBER: US/09/252,991A CURRENT FILING DATE: 1999-02-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1048 VAICAERSPOLLVGILAIVKAGGAYVPIDPDYPSERLAYMLADSGVEILITQAHIFERL-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4 VAVAA-----AVGVLLLAGAGGA------AGDEAREAAAVRA-LVARLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ----HWQC-----RAEDGERSPIGRPLGNVLCRVLDAEF---NLLPAGVAGELCIGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GSWGHFNCSYSCSFLLAPED----PIFPIIGSLFLRELIKEFGTDHIYGADTFNEM----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RLFSGGEALPAE-----LRNRVLQR-----LPAVALHNRYGPTET--AINVT--
     PALD--
                                                       NVGGLARLSGPLDVARFEAALQALVQ-RHETLRTTFPSVDGVPVQRVHGDGGLHMDWQDF
                                                                                                                                                                EAFCEQVRAAQAAGRTDSHGAIRRIDREQPVPLSYSQQRMWFLWQL----EPD---SPAY
                                                                                                                                                                                                                                                                                                                                                                                      RIRAALQA----ELPEYMVPAQLMRLAQMPLGPS-GKLDTRALPEPVWQQREHVEPRTE
                                                                                                                                                                                                                                                                                                                                                                                                                                              GLFGALEAVNGGPEAARLFPNSTMVGTGMAPEGISQNEVVYSLMAELGWRK----DPVPD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RIEPEEIQARLLAQPGVAQAVVVIREGVAGSOLVGYYTGAVGAEAEA------EQNQ 1451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ---PAQIRAVLGAVP---RGRLLVLDLFAESQPV--YTRTASFQGQPFIWCMLHNFGGNH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LGLARGYLGRPALSAERFVADPLSAAGERLYRTGDRARWNADGVLEYLGRLDQQVKLRGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NLHTWDGPLPPSWHIKQLYLQHRVLDQMRSFGMTPVLPAFAGHVPEAVTRVFPQVNVTKM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CFWPLVTGCRLVLAAPGEHRDPARLVELVROFGVTTLHFVPPLLQLFIDEPGVAACGSLR 1255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IDWMALNGINLALAWSGQ-----EAIWQRVYLALGLTQAEINEFFTGPAFLAWGRMG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       --NTHAALA-ERLQWMQATYALDGDDVLMQKAP------VSFDVSVW--E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FCGCHVAWSGSQLRLPRPLPAVPGE--LTEATPNRYRYYQNVCTQSYSFVWWDWARWERE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -PGAEGVTPICLDSLKLDNWPSQAPGLHLH--GDNLAYVIYTSGSTGQPKGVG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GPG----PAADFSVSVERALAAKPGLDTYSLGGGGAARVRVRGSTGVAAAAGLHRYLRD
                                                                                                                                                                                                                                                                             LORRIAVIWSEVLGLPRYGLRDDFFELGGHSLLATRIVSRTRQACDVELPLRALFEASEL
                                                                                                                                                                                                                                                                                                                              -----QPPSSEPSYLAAATTAVYEAMTAVDTEAVWLLQGWL-----FQHQPQFWG-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3.1%; Score 123; DE ilarity 21.4%; Pred. No. 0.11 Conservative 101; Mismatches
                                                                                                                                                                                                                     ----GEACRGHNRSPLVRRPSLQMNTSIWYNRSDVFEAWRLLLITSAPSLATSPAF
                                                                                                         -DLLDLTR--QAVQELVSLYYEEARSAYLSKELASLLRA---GGV-LAYELL
---EVLASDSRFLLGSWLEQA---RAAAVSEAEADFYEQNSRYQLTLWGPE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1999-02-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            aeruginosa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           318;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 3340;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels 236;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   362
                                                                                                                                                                      1618
                                                                                                                                                                                                                                                                                  1565
                                                                                                                                                                                                                                                                                                                                                                                         1505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1106
                                                                                                                  603
                                                                                                                                                                                                                                                                                                                                       505
                                                                                                                                                                                                                                                                                                                                                                                                                                                470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              44;
```

```
RESULT 3
US-08-804-227C-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                         Š
                                                              밁
                                                                                      Ś
                                                                                                                          В
                                                                                                                                                        S
                                                                                                                                                                                            밁
                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                          片
                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                          US-08-804-227C-2
                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                     INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS: LENGTH: 4472 amino aci
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATTORNEY JAGENT INFORMATION:
NAME: Plant, Thomas, G.
REGISTRATION NUMBER: 35,784
REFERENCE/DOCKET NUMBER: X-62
TELECOMMUNICATION INFORMATION:
TELEPHONE: 317-276-2459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: DeHoff, Bradley S.
APPLICANT: Kubstoss, Stuart A.
APPLICANT: Rosteck, Paul R., Jr.
APPLICANT: Sutton, Kimberly L.
TITLE OF INVENTION: POLYKETIDE SYNTHASE GENES
NUMBER OF SEQUENCES: 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER: LEG COMPUTER: MS-
OPERATING SYSTEM: MS-
OPERATING ASCI (DOS) 7
OPERATING ASCI (DOS) 7
                                                                                                                                                                                                                                                                                                                                                                                                          MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CURRENT APPLICATION DATA:
APPLICATION NUMBER: US
FILING DATE: February
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CORRESPONDENCE ADDRESS:
ADDRESSEE: THOMAS G. PLANT 1501
                                                                                                                                                                                                                                                                                                                         Local Sim:
hes 176;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                          TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDIUM TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CITY: INDIANAPOLIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       No.
1896
                                                              1839
                                                                                                                            1800
                                                                                                                                                                                            1744 ----VEAGLAKWPGVEVAAVNGPASTVVSGDRRAVAGYVAVCQAEGVQARLIPVDYASHS 1799
                                                                                                                                                                                                                                                          1686 VDVAAVVGHSQGEIAAATVAGALSLE--DAAAVVALRAGLIGRYLAGRGAMAAVPLPAGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1734 GWAMDIFARELGALYEAFLDDR----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1678 SALDRDSRQQHLQTLA-DSEAHRPFDLESGPLLRVCMVKMAEREHYLVVTLHHIV---TE
                                                                                           144 WWDWARWER----EIDWMALNGINL----
                                                                                                                                                           91
                                                                                                                                                                                                                         48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      INFORMATION:
                                                                                                                                                                                                                                                                                          4 VAVAAAV----GVL1LAGAGGAAGDEAREAAAVRALVARLLG------PGPAAD 47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     , Application US/08804227C 5876991
                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      46285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GNILDYANKQLAGLVANYYTPRWRLFLEALVDSVAQGIPFQQHQFDKNVFQLE 705
                                                                                                                                                                                                                                                                                                                                                                                                                                       amino acid
TGTLRRQDDSPHRLLTSTA-EAWAHGATL-TWDPALPPG-HLTTLPTYPFNHHHYWLD-- 1950
                             LGLTQAE---INEFFTGPAFLAWGRMGNLHTWDGPLPPSWHIKQLYL-----QHRVLDQM 233
                                                                                                                            RHVEDLKGELERVLSGIRPRSPRVPVCSTVAGEQPGEPV-----
                                                                                                                                                           RYLRDFCG-CHVAWSGSQLRLPR-PLPAV-----PGELTEATPNRYRYYQNVCTQSYSFV 143
                                                                                                                                                                                                                         FSVSVERALAAKPGLDTYSLGGGGAA-----RVRVRGSTGVAAAAGLH-------
                                                              -FDAGYWFRNLRNRVEFSAVVGGLLEEGHRRFIEVSAHPVLVHAIEQTAEAA--DRSVHA 1895
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LILLY CORPORATE CENTER
                                                                                                                                                                                                                                                                                                                                                                                                                                                         4472 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       USA
                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                          unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      IBM Compatible SYSTEM: MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      February 21, 1997
                                                                                                                                                                                                                                                                                                                                                                                                      protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Floppy disk
                                                                                                                                                                                                                                                                                                                         3.1%; Score 121; DB 2; Length 4472;
21.6%; Fred. No. 0.29;
tive 71; Mismatches 280; Indels 28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US/08/804,227C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Text only
                                                                                                                                                                                                                                                                                                                  71;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          X-8231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -----ESPLEPLPVQ--YLDYSVWQRE 1775
                                                                                           ---ALAWSGOEAIWQRVYLA 181
                                                                                                                                                                                                                                                                                                                          288;
                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                            1743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1733
                                                                                                                              1838
                                                                                                                                                                                                                             90
                                                                                                                                                                                                                                                                                                                            44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     뭕
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   뭠
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-08-804-227C-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 4, Applia Patent No. 587699
            TELEPHONE: 317-276-24
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GENERAL INFORMATION APPLICANT: DeHof1
                                         ATTORNEY/AGENT INFORMATION:
NAME: Plant, Thomas, G.
REGISTRATION NUMBER: 35,784
REFERENCE/DOCKET NUMBER: X-
TELECOMMUNICATION INFORMATION:
                                                                                                                              CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/804,
EILING DATE: February 21, 1997
CLASSIFICATION: 435
SEQUENCE CHARACT
                                                                                                                                                                                                                                           COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                       NUMBER OF SEQUENCES: 1
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                             STREET: LILL. CITY: INDIANAPOLIS
                                                                                                                                                                                          COMPUTER: IBM Compatible
OPERATING SYSTEM: MS-DOS
SOFTWARE: ASCI(DOS) Text only
                                                                                                                                                                                                                                                                                    COUNTRY:
                                                                                                                                                                                                                                                                                                                                                           ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    343
                                                                                                                                                                                                                                                                            46285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Application US/088042270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TS----APSLATSPAFRYDLLD----
                                                                                                                                                                                                                                                                                                                                          E: THOMAS G. PLANT 15
LILLY CORPORATE CENTER
                                                                                                                                                                                                                                                                                           USA
                                                                                                                                                                                                                         E: Floppy disk
IBM Compatible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DeHoff, Bradley
                             317-276-2459
                 4:
                                                                 X-8231
```

```
1951 ----TTPTTPATTTQSPTDAWR----YRVT----WK------ALTESSPVRPHSIG
2343 AYAAANAALDALAERRRAAGLPATSVAWGLWGGGG 2377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        293 SIFIRELIKEFGTDHIYGADTFNEMQPPSSEPSYLAAATTAVYEAMTAV------D 342
                                                                                                                        AGILDDAVIDTLSPESFETVRGAKVCGAELLHQLTADIKGLDAFVLFSSVTGTWGNAGQG 2342
                                                                                                                                                                                     ---YEEARSAYLSKELASLLRAGGVLAYELLPALDEVLASDSRFLL-----GSWLEQARA
                                                                                                                                                                                                                                                                                                                                                                              AGAASWQPSGTVLITGGMGAIGRR------LARRLAAE------GAERLVL
                                                                                                                                                                                                                                                                                                                                                                                                                                          DAGAAWR----LLLRSVYNCSGEACRGHNRSPLVRRPSLQMNTSIWYNRSDVFEAWRLLL 544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AVSDIGVPAARVWALTRRAVAVVPGETPQDAGAQLWGFGRVAALELPDIWGGLIDLPETA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TEAVWILQGWLFQHQPQFWGPAQ----IRAVIGAVPRGRLLVIDIFAESQPVYTRTASFQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RSFGMTPVLPAFAGHVPEAVTRVFPQVNVTKMGSWGHFNCSYSCSFLLAPEDPIFP-IIG
                                                               A-AVSEAEADFYEQNSR-----YQLTLWGPEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ELTRTPETSQPPQTPERLPQTPNRRALELAAAVLAGRDGEDQVAVRASGIYGRRVSRAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AEVAELL-----KPSMESAGEENTTVVSLLGLVP-----STDAVRTSIALLQ 2070
                                                                                                                                                                                                                                                     TSRRGPEAPGAA-----ELAEELRGHGCEVVHAACDVAERDALAALVTAYPPNAVFHT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RLFPNSTMVGTGMAPEGISQ--NEVVYSLMAELGWRKDPVPDLAAWVTSFAARRYGVSHP 488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ----GQPF--IWCML-----HNFGGNHGLFGALEAVN-----GG----PEAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -----VAPPTTDGELLDGLTTVLSERGASVARLEVPIGARR
                                                                                                                                                                                                                                                                                                                    ------LTRQAVQELVSLY------
                                                               653
                                                                                                                                                                                            627
                                                                                                                                                                                                                                                           2282
                                                                                                                                                                                                                                                                                                                                                                                    2229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2028
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1988
                                                                                                                                                                                                                                                                                                                        575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           292
```

PELICANT: Kuhstoss, Stuart A.
PELICANT: Rosteck, Paul R., Jr.
PELICANT: Sutton, Kimberly L.
TLE OF INVENTION: POLYKETIDE SYNTHASE GENES US/08/804,227C

```
RESULT 5
US-09-858-664A-2
Sequence 2, App
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ; TYPE: amino a TOPOLOGY: unl; MOLECULE TYPE: US-08-804-227C-4
                                                                                 밁
                                                                                                         5
                                                                                                                                           밁
                                                                                                                                                                      Ś
                                                                                                                                                                                                    용
                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                          片
                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                      문
                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity 22.4
Matches 192; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                 1084
                                                                                                                                              1337
                                                                                                                                                                                                      1278
                                                                                                                                                                                                                                                                                                                                                                                    1136 RQLAATLAGRPAEDQVALRA--SGAYGRRLVRASAAGGADGWRPRG-----TVLVV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1039 IVSLLALAGDHAGADGARPVVPAGLAASLALIQAAGDAGTEAGLW--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       323 EPSYLA------AATTAVYEAMTAVDTEA-VWLLQGWLFQHQPQFWG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      979 LLVVPEASADPSVAEGVARELTARGATVESLTVEPGADRSRLRGLLVDATERDEAGPLRG 1038
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 279 FLLAPEDPIFPIIGSLFLRELIK-----EFGTDH-----IYGADTFNEMQPPSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    821
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       726 ----VÉAGLAKWPGVEVAAVNGPASTVVSGDRRAVAGYVAVCQÁEGVQARLIFVDYASHS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    668 VDVAAVVGHSQGEIAAATVAGALSLE--DAAAVVALRAGIIGRYLAGRGAMAAVPLPAGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          91 RYLRDFCG-CHVAWSGSQLRLPR-PLPAV----PGELTEATPNRYRYYQNVCTQSYSFV 143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4 VAVAAAV----GVLLLAGAGGAAGDEAREAAAVRALVARLLG------PGPAAD
                                                                                                                                                                       RAGG---VLAYELLPALDEVLASDSRFLLGSWLEQA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PAQIRAVIGAVPRGRILVIDIFAESOPV---YTRTASFOGOPFIWCMLHNFGGNHGIFG- 418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RSFGMTPVLPAF-----AGHVPEAVT--RVFPQVNVTKM--GSWGHFNCSYSCS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TGTLRRQDDSPHRLLTSTA-EAWAHGATL-TWDPALPPG-HLTTLPTYPFNHHHYWLD--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WWDWARWER----EIDWMALNGINL-------ALAWSGQEAIWQRVYLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FSVSVERALAAKPGLDTYSLGGGGAA-----RVRVRGSTGVAAAAGLH-------
       Application
                                                                                 TVADIDWERFASAYTAT 1409
                                                                                                              SEAEADFYEONSRYOLT 647
                                                                                                                                                                                                      KTGLVDRLDSLLDEPDPLLEDGELDAFVVPSSVAGVWGGAGQGGYAAGTAYLD-ALAECR 1330
                                                                                                                                                                                                                                                              PALRTILAEQAPTAV-----LVAPPAVPPTP-----LAEMTAEALAIALSA 1277
                                                                                                                                                                                                                                                                                            SPLVRRPSLOMNTSIWYNRSDVFEAWRLLLTSAPSLATSPAFRYDLLDLTRQA-----
                                                                                                                                                                                                                                                                                                                            GDTAEVAGPLVRWLLGNGARRVTLSGLSGPLPEELADVAARVTV-----APCDPADR
                                                                                                                                                                                                                                                                                                                                                       GWRKDPVPDLAAWVTSFAARRY---GVSHP----DAGAAWRLLLRSVYNCSGEACRGHNR 514
                                                                                                                                                                                                                                                                                                                                                                                                                  -----GMAPEGISONEVVYSLMAEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                 -AVTRGAVAAVPG-----DVPAPSQALLWGFGRVAGIE-LPHCWGGLLDLPTGPGDSGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ----TTPTTPATTTQSPTDAQNPADALPYKVSWKRLRDQDSLTARLDGRW------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LGLTQAE---INEFFTGPAFLAWGRMGNLHTWDGPLPPSWHIKQLYL-----QHRVLDQM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    - FDAGYWFRNLRNRVEFSAVVGGLLEEGHRRFIEVSAHPVLVHAIEQTAEAA--DRSVHA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RHVEDLKGELERVLSGIRPRSPRVPVCSTVAGEQPGEPV----------
                                                                                                                                              RAGGLPVTSVAWTPWLG-TPAADS---LGEQMSRAGITPLDPAASLDALARAVGRRAGCV
                                                                                                                                                                                                                                    ----VQELVSLYYE------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3.0%; Score 120; DB 2; Length 3729;
22.4%; Pred. No. 0.26;
ative 72; Mismatches 265; Indels 32
         US/09858664A
                                                                                                                                                                                                                                    ---EARSAYLSKELASLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             328;
                                                                                                                                                                           -----RAAAV 630
                                                                                                                                              1392
                                                                                                                                                                                                                                                                                                                              . 1236
                                                                                                                                                                                                                                                                                                                                                                                                                  461
                                                                                                                                                                                                                                                                                                                                                                                                                                                 1135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          932
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     877
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    725
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  47
                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                       .
Д.
                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                  뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                    문
                                                                               S
                                                                                                                 밁
                                                                                                                                         Ś
                                                                                                                                                                         밁
                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-09-858-664A-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LENGTH: 1665
TYPE: PRT
ORGANISM: Homo
                                                                                                                                                                                                                                                                                               1173
                                                                                                                                              494
                                                                                                                                                                                                                                                                                                                                                                                       267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      152
                                                                                                                                                                                                                                                                                                                                                                                                                                               214
                                                                                                                                                 WRLLLRSVYNC---
```

```
PATENT NO. 6482624

GENERAL INFORMATION:

APPLICANT: WEI, Ming-Hui, et al.

APPLICANT: WEI, Ming-Hui, et al.

TITLE OF INVENTION: ISOLATED HUMAN KINASE PROTEINS, NUCLEIC

TITLE OF INVENTION: ACID MOLECULES ENCODING HUMAN KINASE PROTEINS, AND USES

TITLE OF INVENTION: THERBOF

FILE REFERENCE: CL000927-CIP

CURRENT FILING DATE: 2001-05:17

PRIOR APPLICATION NUMBER: 09/711,134

PRIOR FILING DATE: 2000-11-11

NUMBER OF SEQ ID NOS: 33

SOFTWARE: FASTSEQ for Windows Version 4.0

1800 ID NO 2

1800 ID NO 2

1800 ID NO 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 3.0%; Score 118.5; DB 4; Length 1665; Best Local Similarity 18.6%; Pred. No. 0.094; Matches 165; Conservative 97; Mismatches 307; Indels 319;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1090 SRSLFHFPG---RHLPLDEPAELGLRERVKASVEHISRILKGRPEGLEKEGPP---RKKP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1030 OPEPPSPMAEEELAEPPEPTWPWPGELGPHAGLEITEESEDVDALLAEAAVGRKKKWSSP 1089
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    929 SQSEEQQEARAESPLPQVSARPVPEVGRAPTRSSP------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                19 GGAAGDEAREAAAVRALVARL-LGPGPAAD---FSVSVERALAAKPGLD-----TY
                                                                                                  QGRSAQPLPSTKTFAFQTQIQRGRFSVVRQCWEKASGRALAAKIIPYHPKDKTAVLREYE 1415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GLASFRLSGLKSWDRAP-----TFLREL----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DIGQVSLVQIRDLSGDABAADTISLDISEVDPÄYLNLSDLYDIKYLPFEFMIFRKVPKSA 1029
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GSASQASSSQVSSLRVGSSQVGTEPGPSLDAEGWTQEAEDLSDSTPTLQRPQEQVTMRKF
AVQELVSLYYEEARSAYLS-KELASILRAGGVLAYELLPALDEVLASDSRFLLGSWLEQA 625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LAAATTAVYEAMTAVDTEAVMLLOGWLFOHOPOFWGFAQIRAVLGAVPRG--RLLVLDLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SWGHFNCSYSCSFLLAPEDPIFPIIGSLFLRELIKEFGTDHIYGADTFNEMQPPSSEPSY 326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LPPSWHIKQLYLQHRVLDQMRSFGMTPVLPAFAGHV-----PEAVTRVFPQVNVTKMG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -----AFLAWGRMGNLHTWDGP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ------REI--DWMALNGINLAL----AWSGQEAIWQRVYLAL------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SLGGRGGYAGVAGYGTFAFGGDAG-----GMLGQGPMWARIAWAVSQSEEEEQEEARAE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SLGG-GGAARVRVRGSTGVAAAAGLHRYLRDFCG----CHVAWSGSQLR------
                                                                                                                                                                    RGHNRSPLVRRPSLQMNTSIWYNR-SDVFEAWRLLLTSAPSLATSPAFRYDLLDLTR--Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PEGISQNEVVYSLMAELGWRKDPVPD-----LAAW--VTSFAARRYGVSHPDAGAA 493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AESQPVYTRTASFQGQPFIWCMLHNFGGNHGLFGALEAVNGGPEAARLFPNSTMVGTGMA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LGQSVTLACQVSAQPAAQATWSKDGAPLE-----SSSRVLISATLKNFQLLTILVVV 1224
                                                                                                                                                                                                                                       WTTLASDIFDCCYLTSKLSRGGTYTFRTACVSKAGMGPYSSPSEQVLLGGPSHLASEEES
                                                                                                                                                                                                                                                                                                                                                                     ------PCPDIGEVYADGVLLVWKPVESYGPVTYIVQCSLEGGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -CSVSNALGTVTTTGVLR----KAER--PSSS-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ----EPTPWE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -SDETVV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                             SGEAC 509
                                                                                                                                                                                                                                              1355
                                                                                                                                                                                                                                                                                                                                                                            1295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             928
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            874
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              65
```

645

814

585

754

701

```
В
                                                                                                                                                                                                                                                                                                                                                                                                                                                      B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                           Ş
                                                                                                        ₽
                                                                                                                                   Ś
                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-09-252-991A-23637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-252-991A-23637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR FILING DATE: 1.
NUMBER OF SEQ ID NOS:
SEQ ID NO 23637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GENERAL INFORMATION:
APPLICANT: MARC J. Rubenfield et al.
TITLE OF INVENTION: AUCLBIC ACID AND AMINO ACID SEQUENCES RELATING
TITLE OF INVENTION: AERUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 23637, Application US/09252991A
Patent No. 6551795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CURRENT APPLICATION NUMBER: US/09/252,991A CURRENT FILING DATE: 1999-02-18 PRIOR APPLICATION NUMBER: US 60/074,788 PRIOR FILING DATE: 1998-02-18 PRIOR APPLICATION NUMBER: US 60/094,190 PRIOR APPLICATION NUMBER: US 60/094,190 PRIOR FILING DATE: 1998-07-27 NUMBER OF SEQ ID NOS: 33142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TYPE: PRT ORGANISM: Pseudomonas aeruginosa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ENGTH: 916
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1416 ALKGLRHPHLAQLHAAYLSPRHLVLILEL--CSGPELLPCLAE-RASYSESEVKDYLWQM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   626
                                                                                                                                                                                                                                                                                                                                                                                                                                                        389
                      965
                                                                                                                                                   350
                                                                                                                                                                                              497
                                                                                                                                                                                                                                     307
                                                                                                                                                                                                                                                                                456
                                                                                                                                                                                                                                                                                                                         262
                                                                                                                                                                                                                                                                                                                                                                    423
                                                                                                                                                                                                                                                                                                                                                                                                          202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           296 GTGLÄVDQQRRVERRHÄLRTGLQ------GÄDRLGIAEEHLEPLGMVMVQGRQALÄDÄV 348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             238 LQQARLAAALGA--GEGAGGVAEQLAFGQVLRQRRAVQRQERRVVPRTQGMAAARHQFLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 167; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  88 GLHRYLRDFCGCHVAWSGSQ-----LRLPRPLPAVPGELTEATPNRYRYYQNVCTQSYS 141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 MEAVAVAAAVGVLLLAGAGGAA-----GDEAREAAAV----RALVAR-------LL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LSATQYLHNQHILHLDLRSENMIITEYNLL-----KVVDLGNAQSLSQEKVLPSDKFKD 1526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FVWWDWARWEREIDWMALNGINLALAWSGQEAIWQRVYLALGLTQAEINEFFTGPAFLAW 201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GPGPAADFSVSVERALAAKPGLDTYSLGGGGAAR-----VRVRGSTGVAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RAAA----VSEAEADFYEQN---SRYQLTLWGPEGNILDYANKQLAGLVANYYTPRWRL 677
                                                             CMLHNFGGNHGLFGALEAVNGGPEAARLFPNSTMV-----
                                                                                                                                                   QGWLFQHQPQFWGPAQ----IRAVLGAVPRGRLLVLDLFAESQPV-YTRTASFQGQPFIW
                                                                                                                                                                                          HFHRIQVQVAPTQQRQHLLGDADTVDEGDVDAHAGTW-TAATLAIKPSIVRPGAA-----
                                                                                                                                                                                                                                                                              AGKDVDHGHRLHATDAQQRCA-----
                                                                                                                                                                                                                                                                                                                         VTKMGSWGH----FNCSYSCSFLLAPEDPIFPIIGSLFLRELIKEFGTD------
                                                                                                                                                                                                                                                                                                                                                                                                          GRMGNLHTWDGPLPPSWHIKQLYLQHRVLDQMRSFGMTPVLPAFAGHVPEAVTRVFPQVN 261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ---RFV-----EGQQAAGQVPLALARPFGDRRGIEQQGLAHEGHFAQR-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    YLETMAPELLEGOGAVP-----QTDIWAIGVTAFIMLSAEYPVSSEG 1568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FLEALVDSVAQG----IPFQQHQFDKNVFQL-EQAFVLSKQRYPSQPRG
                                                                                                        ·QPK--GPASGYGAQRLAAGAVAPVALVVHHGFGHQHPARLLRVGLVQ------
                                                                                                                                                                                                                                                                                                                                                                                                                                                      -QAEALLDQRILQGFIVEQA--GQPLAGR
                                                                                                                                                                                                                                     ----HIYG-ADTFNEMQPPSSEPSYLAAATTAVYEAMTAVDTEAVWLL
                                                                                                                                                                                                                                                                                                                                                                  -----QALAVHRQHRI-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2.9%; Score 113.5;
21.4%; Pred. No. 0.11
ative 77; Mismatches
                      -LGVVPGGGD-VRQHPHPLAVADFQQRRLGPGAGPPGTQQLQALAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               247;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 4;
                                                                                                                                                                                                                                                                              ----QFLQHFGTEGRRVDVDVRRH 496
                                                                                                                                                                                                                                                                                                                                                                  -----GHRRQQRIELQAAAL 455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 916;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                               GTGMAPEGISQNEVVYS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 289;
                                                                                                                                                                                                                                                                                                                                                                                                                                                      ---VASAALAE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TO PSEUDOMONAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1472
                      643
                                                               456
                                                                                                                                                   404
                                                                                                                                                                                                                                                                                                                                                                                                                                                      422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        40
                                                                                                        595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Schupp, Thomas
APPLICANT: Ligon, James
APPLICANT: Molnar, Istvan
APPLICANT: Molnar, Istvan
APPLICANT: Zirkle, Ross
APPLICANT: Cyr, Devon
APPLICANT: Goerlach, Joern
APPLICANT: Goerlach, Joern
APPLICANT: Goerlach, Joern
APPLICANT: Goerlach, Joern
APPLICANT: GOENES FOR THE BIOSYNTHESIS OF
FILE REFERENCE: 4-30582A
CURRENT APPLICATION NUMBER: US/09/335,409
CURRENT FILING DATE: 199-06-17
NUMBER OF SEQ ID NOS: 30
SOPTWARE: Patentin Ver. 2.0
SOPTWARE: Patentin Ver. 2.0
                                           밁
                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                         ş
                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                             5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ; LENGTH: 7257
TYPE: PRT
; ORGANISM: Sorangium cellulosum
US-09-335-409-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
Ş
                                                                               S
                                                                                                                               밁
                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 7
US-09-335-409-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              б
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ୃଷ୍ଟ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 5, Application US/09335409
Patent No. 6121029
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                      4903
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4847
                                                                                                                                                                                                                                                                                                    4956 SLDVRAASQ-----ASGAAVPPVWRALVRAEARHTAAGAQGAL--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4805 IPAEWPLQGVIHAAGALDD-----
                                                                                                                               5056 VGATLPATLAFDHPTVDALTRWLLDKVLAVAEPSVSSAKSSPQVALDEPIAIIGIGCRFP
                                                                                                                                                                       483
                                                                                                                                                                                                                                                                                                                                           380 VLDLFAESOPVYTRTASFOGOPFIWCMLHNFGGNHGLFGALEAVNGGPEAARLFPNSTMV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     214 LPPSWHIKQLYLQHRVLDQMRSFGMTPVLPAFAGHVPEAVTRVFPQVNVTKM-GSWGHFN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   273 CSYSCSFLLAPEDPIFPIIGSLFLRELIKEFGTDHIYGADTFNEMQPPSSEPSYLAAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         815 QGLAAALPVGG------LPALEQ--AED--FAFGGSLDQ-RWVQAEERGAEYRAQESAHR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             702
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      485 VSHPDAGAAWRLLLRSVYNCSGEACRGHNRSPLVRRPSL--QMNTSIWYNRSDVFEAWRL 542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               644 AVVÉAAEDAEHRAGATAORÍG--RDARVGAÉEVÁAAILVÉVÁQGGAVRRVGHYFGEVRÉG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                108;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity 22.3
08; Conservative
  ARSAYLSKELASLLRAGGVLA----
                                                                                                                                                                                                                                                         GTGMAPEGISQNEVVYSLMAE----LGWR-----KDPVPDL-----AAWVTSFAARR 482
                                                                                                                                                                          YGVS-----HPDAGAAWRLLLRSVYNCSGEACRGHNRSPLV--
                                                                                                                                                                                                                   --GALPEARRADEVRKVVQAEIARVLSWSAASAVPVDRPLSDLGLDSLTAVELRNVLGQR
                                                                                                                                                                                                                                                                                                                                                                                      AWGPWSDGGMAAGLSAA-----LQARLARHGMGALSPAQGTALLGQALARPETQLGAM
                                                                                                                                                                                                                                                                                                                                                                                                                             A-----VYEAMTAVDTEAVWLLQGWLFQHQPQFWGPAQIRAVLG---AVPRGRL--L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ---NLHELTAGNDLAFFVLFS-SMSGLLGSAGQSNYAAANTFLDALAAHRRAEGLAAQSL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LLTSAPSLATSPAFRYD-----LLDL-----TRQAVQELVSLYYEEARSAYLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TG--EAAASQRGVAR-VDGVAGDLVALADEAPGIARPGALGQEQPRIVAQAS--VEAY--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LMAE--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KELASILRAGGVLAYELLPALDEVLASDSRFILGSWLEQARAAAVSEAEADFYEQNSRYQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LLDEAHLVAAFLVARHDLRRSDDALLEVGMAGEEGLLGGEGALARLRAAIVVQARRIDFF
                                                                                 SIQMNTSIWYNRSDVFEAWRLLLTSAPSLATSPAFRYDLLDLTRQAVQELVSLYYE----E
                                           -GVADPESFWRLLEEGSDAVVEVPHERWD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2.9%; Score 113;
22.3%; Pred. No. 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             51;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -LGWRKDP---VPDLAAWVTSFAAR--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches 183;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ----GVLDEQTTDRFSRVLAPKVTGAW----
    -YELLPALDEVLASDSRFLL-GSWLEQARAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 3; Length 7257;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OF EPOTHILONES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels 142;
                                                                                                                                                                                                                                                                                                  ---AARL
                                             -IDAFYDPDPD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -RYG
                                                                                                                                                                            RRP
```

5154 578 5115 5055

521

4955 379

439

4997

332 4846

272

4902

```
Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ; TYPE: PRT ; ORGANISM: Sorangium cellulosum US-09-568-102-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-09-568-102-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ъ
                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                        문
                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
멂
                            Ś
                                                               맑
                                                                                               Ś
                                                                                                                                 망
                                                                                                                                                                Š
                                                                                                                                                                                                    B
                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NUMBER OF SEQ ID NOS: 30
SOFTWARE: PATENTIN Ver. 2.0
SEQ ID NO 5
LENGTH: 7257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         sequence 5, Application US/09568102 Patent No. 6346404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches 108;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Cyr, Devon
APPLICANT: Goerlach, Joern
TITLE OF INVENTION: GENES FOR THE BIOSYNTHESIS OF EPOTHILONES
FILE REFERENCE: 4-30582A
CURRENT APPLICATION NUMBER: US/09/568,102
CURRENT FILING DATE: 2000-05-10
PRIOR APPLICATION NUMBER: 09/335,409
PRIOR FILING DATE: 1999-06-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Schupp, Thomas
APPLICANT: Ligon, James
APPLICANT: Molnar, Istvan
APPLICANT: Zirkle, Ross
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5155
                                                                                                                                                                                                                                                                                                                                                                                                          4903
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4805
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5208
                                                                                                                                                                                                                                                                                                                                         4956
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4847
                                                                5155
                                                                                                                                   5116
                                                                                                                                                                                                      5056
                                                                                                                                                                                                                                                                        4998
                                                                                                                                                                                                                                                                                                                                                                                                                                          333
                                                                                                                                                                                                                                                                                                         440
                                                                                                   579
                                                                                                                                                                     522
                                                                                                                                                                                                                                      483
                                                                                                                                                                                                                                                                                                                                                                          380 VLDLFAESQPVYTRTASFQGQPFIWCMLHNFGGNHGLFGALEAVNGGPEAARLFPNSTMV 439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             273 CSYSCSFLLAPEDPIFPIIGSLFLRELIKEFGTDHIYGADTFNEMQPPSSEPSYLAAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              214 LPPSWHIKQLYLQHRVLDQMRSFGMTPVLPAFAGHVPEAVTRVFPQVNVTKM-GSWGHFN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VRGKMTT-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AVSE 632
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ILPE 5211
ILPE 5211
                                  AVSE
                                                                                                                                                                                                      VGATLPATLAFDHPTVDALTRWLLDKVLAVAEPSVSSAKSSPQVALDEPIAIIGIGCRFP 5115
                                                                                                                                                                                                                                                                                                                                                                                                          AWGPWSDGGMAAGLSAA-----LQARLARHGMGALSPAQGTALLGQALARPETQLGAM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ---NLHELTAGNDLAFFVLFS-SMSGLLGSAGQSNYAAANTFLDALAAHRRAEGLAAQSL 4902
                                                                                                                                                                     SLQMNTSIWYNRSDVFEAWRLLLTSAPSLATSPAFRYDLLDLTRQAVQELVSLYYE---E
                                                                                                                                                                                                                                                                        --GALPÉARRADEVRKVVQÁÉIARVLSWSAASAVPVDRPLSDLGLDSLTÁVELRNVLGQR 5055
                                                                                                                                                                                                                                                                                                       GTGMAPEGISONEVVYSLMAE----LGWR-----KDPVPDL-----AAWVTSFAARR 482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IPAEWPLQGVIHAAGALDD-
                                                                                                   ARSAYISKELASIIRAGGVIA-----YELLPALDEVLASDSRFIL-GSWLEQARAA 628
                                                                                                                                                                                                                                    YGVS-----HPDAGAAWRLLLRSVYNCSGEACRGHNRSPLV--
                                                                VRGKMTT-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                  632
                                                                                                                                     --GVADPESFWRLLEEGSDAVVEVPHERWD
                                                                                                                                                                                                                                                                                                                                                                                                                                          - VYBAMTAVDTBAVWLLQGWLFQHQPQFWGPAQIRAVLG- - - AVPRGRL- - L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2.9%;
                                                                                                                                                                                                                                                                                                                                         ----ASGAAVPPVWRALVRAEARHTAAGAQGAL----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RFGGFLSDIDRFDPAFFGISPREATTMDPQQRLLLETSWEAFERAG
                                                               RFGGFLSDIDRFDPAFFGISPREATTMDPQQRLLLETSWEAFERAG 5207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9%; Score 113; DB 4; L
3%; Pred. No. 4;
51; Mismatches 183;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ----GVLDEQTTDRFSRVLAPKVTGAW----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 7257;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels 142;
                                                                                                                                     -IDAFYDPDPD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                          --RRP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   272
                                                                                                                                                                                                                                                                                                                                                                                                            4955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5207
                                                                                                                                                                                                                                                                                                                                                                                                                                              379
                                                                                                                                     5154
                                                                                                                                                                     578
                                                                                                                                                                                                                                                                                                                                           4997
                                                                                                                                                                                                                                        521
```

```
RESULT 9
US-09-567-969-5
닭
                             Ś
                                                                                              Ś
                                                                                                                                    밁
                                                                                                                                                                  S
                                                                                                                                                                                                       B
                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                 묽
                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-09-567-969-5
                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GENERAL INFORMATION Thomas
APPLICANT: Schupp, Thomas
APPLICANT: Ligon, James
Tetve
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 5, Application US/09567969 Patent No. 6355457 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOFTWARE: PatentIn Ver. 2.0 SEQ ID NO 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Local Similarity 22.3 Matches 108; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Cyr, Devon
APPLICANT: Goerlach, Joern
TITLE OF INVENTION: GENES FOR THE BIOSYNTHESIS OF EPOTHILONES
FILE REFERENCE: 4-30582A
CURRENT APPLICATION NUMBER: US/09/567,969
CURRENT FILING DATE: 2000-05-10
PRIOR APPLICATION NUMBER: 09/335,409
PRIOR FILING DATE: 1999-06-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NUMBER OF SEQ ID NOS: 30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TYPE: PRT
ORGANISM: Sorangium cellulosum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LENGTH:
                                                                                                                                                                                                                                                                                                                                                 4956
                                                                  5155
                                                                                                                                    5116
                                                                                                                                                                                                       5056 VGATLPATLAFDHPTVDALTRWLLDKVLAVAEPSVSSAKSSPQVALDEPIAIIGIGCRFP 5115
                                                                                                                                                                                                                                                                             4998
                                                                                                                                                                                                                                                                                                                                                                                                                   4903
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4847 ---NLHELTÄGNDLAFFVLFS-SMSGLLGSAGQSNYAAANTFLDALAAHRRAEGLAAQSL
5208 ILPE 5211
                               629
                                                                                                 579
                                                                                                                                                                                                                                            483
                                                                                                                                                                                                                                                                                                          440 GTGMAPEGISQNEVVYSLMAE----LGWR-----KDPVPDL-----AAWVTSFAARR
                                                                                                                                                                                                                                                                                                                                                                              380 VLDLFAESQPVYTRTASFQGQPFIWCMLHNFGGNHGLFGALEAVNGGPEAARLFPNSTMV 439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         214 LPPSWHIKQLYLQHRVLDQMRSFGMTPVLPAFAGHVPEAVTRVFPQVAVTKM-GSWGHFN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    7257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CSYSCSFILAPEDPIFPIIGSLFLRELIKEFGTDHIYGADTFNEMQPPSSEPSYLAAATT
                                                                                                                                                                                                                                                                                                                                                                                                                   AWGPWSDGGMAAGLSAA-----LQARLARHGMGALSPAQGTALLGQALARPETQLGAM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        I PAEWPLOGVIHAAGALDD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Molnar, Istvan
Zirkle, Ross
                                 AVSE 632
                                                                                                 ARSAYLSKELASILRAGGVLA-----YELLPALDEVLASDSRFLL-GSWLEQARAA 628
                                                                                                                                                                     SLOMNTSIWYNRSDVFEAWRLLLTSAPSLATSPAFRYDLLDLTRQAVQELVSLYYE---E 578
                                                                                                                                                                                                                                          YGVS-----HPDAGAAWRLLLRSVYNCSGEACRGHNRSPLV--
                                                                                                                                                                                                                                                                           --GALPEARRADEVRKVVQÁÉTARVÍSWSAASAVPVDRPISDÍGIDSITAVEIRNVIGQR 5055
                                                                                                                                                                                                                                                                                                                                                                                                                                                 A-----VYEAMTAVDTEAVWLLQGWLFQHQPQFWGPAQIRAVLG---AVPRGRL--L
                                                                  VRGKMTT-
                                                                                                                                  -GVADPESFWRLLEEGSDAVVEVPHERWD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2.9%;
                                                                                                                                                                                                                                                                                                                                                 ---ASGAAVPPVWRALVRAEARHTAAGAQGAL-
                                                                    -RFGGFLSDIDRFDPAFFGISPREATTMDPQQRLLLETSWEAFERAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          51; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 113;
Pred. No. '
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GVLDEQTTDRFSRVLAPKVTGAW----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              183;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 7257;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels 142;
                                                                                                                                          IDAFYDPDPD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                               RRP
                                                                                                                                                                                                                                                                                                                   482
                                                                                                                                                                                                                                                                                                                                                                                                                                                        379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               272
                                                                                                                                          5154
                                                                                                                                                                                                                                               521
                                                                                                                                                                                                                                                                                                                                                     4997
                                                                                                                                                                                                                                                                                                                                                                                                                         4955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4902
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            332
```

US-09-568-480-5

Sequence 5, Application US/09568480 Patent No. 6355458 GENERAL INFORMATION:

APPLICANT: Schupp,

Thomas

```
Ś
                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   뭕
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                           US-09-568-486-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-09-568-480-5
                                                                  APPLICANT: Schupp, I
APPLICANT: Ligon, J
APPLICANT: Molnar,
APPLICANT: Zirkle,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NUMBER OF SEQ ID NOS: 30
SOFTWARE: PatentIn Ver. 2.0
SEQ ID NO 5
LENGTH: 7257
                                                                                                                                                      GENERAL
                                                                                                                                                                    Sequence 5, Application US/09568486 Patent No. 6355459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches 108;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CURRENT APPLICATION NUMBER: US/09/568,480
CURRENT FILING DATE: 2000-05-10
PRIOR APPLICATION NUMBER: 09/335,409
PRIOR FILING DATE: 1999-06-17
PRIOR FILING DATE: 1999-06-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Cyr, Devon
APPLICANT: Gorlach, Joern
TITLE OF INVENTION: GENES FOR THE BIOSYNTHESIS OF EPOTHILONES
FILE REFERENCE: 4-30582A
                  TITLE OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TYPE: PRT
ORGANISM: Sorangium cellulosum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Match 2.9%; Score 113; Cocal Similarity 22.3%; Pred. No. 4;
REFERENCE: 4-30582A
                                                                                                                                                                                                                                                                                                                                                             5155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4956
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4903 AWGPWSDGGMAAGLSAA-----LQARLARHGMGALSPAQGTALLGQALARPETQLGAM 4955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               440
                                                                                                                                                    INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     380 VLDLFAESQPVYTRTASFQGQPFIWCMLHNFGGNHGLFGALEAVNGGPEAARLFPNSTMV
                                                                                                                                                                                                                                                                                                                         629 AVSE 632
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  214 LPPSWHIKQLYLQHRVLDQMRSFGMTPVLPAFAGHVPEAVTRVFPQVNVTKM-GSWGHFN 272
          T: Cyr, Devon
T: Goerhach, Joern
T: Goerhach, Joern
INVENTION: GENES FOR THE BIOSYNTHESIS OF EPOTHILONES
                                                                    Ligon, James
Molnar, Istvan
Zirkle, Ross
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VGATLPATLAFDHPTVDALTRWLLDKVLAVAEPSVSSAKSSPQVALDEPIAIIGIGCRPP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    YGVS-----HPDAGAAWRILLERSVYNCSGEACRGHNRSPLV----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        --GALPEARRADEVRKVVQAEIARVLSWSAASAVPVDRPLSDLGLDSLTAVELRNVLGQR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTGMAPEGISQNEVVYSLMAE----LGWR------KDPVPDL-----AAWVTSFAARR 482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SLDVRAASQ-----ASGAAVPPVWRALVRAEARHTAAGAQGAL----AARL-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ---NLHELTAGNDLAFFVLFS-SMSGLLGSAGQSNYAAANTFLDALAAHRRAEGLAAQSL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CSYSCSFLLAPEDPIFPIIGSLFLRELIKEFGTDHIYGADTFNEMQPPSSEPSYLAAATT 332
                                                                                                                                                                                                                                                                                   ILPE
                                                                                                                                                                                                                                                                                                                                                             VRGKMTT-
                                                                                                                                                                                                                                                                                                                                                                                                  ARSAYLSKELASILRAGGVLA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SLOMNTSIWYNRSDVFEAWRLLLTSAPSLATSPAFRYDLLDLTROAVOELVSLYYE---E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IPAEWPLQGVIHAAGALDD-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A-----VYEAMTAVDTEAVWLLQGWLFQHQPQFWGPAQIRAVLG---AVPRGRL--L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Molnar,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Zirkle, Ross
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                   5211
                                                                                                                            Thomas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Istvan
                                                                                                                                                                                                                                                                                                                                                                                                                                      -GVADPESFWRLLEEGSDAVVEVPHERWD
                                                                                                                                                                                                                                                                                                                                                           RFGGFLSDIDRFDPAFFGISPREATTMDPQQRLLLETSWEAFERAG 5207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          51; Mismatches 183; Indels 142;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -----GVLDEQTTDRFSRVLAPKVTGAW----
                                                                                                                                                                                                                                                                                                                                                                                                  -YELLPALDEVLASDSRFLL-GSWLEQARAA 628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 7257;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ------RRP
                                                                                                                                                                                                                                                                                                                                                                                                                                      -IDAFYDPDPD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                      5154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5055
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4902
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          578
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        22;
```

```
; PRIOR APPLICATION NUMBER: 09/335,409; PRIOR FILING DATE: 1999-06-17; NUMBER OF SEQ ID NOS: 30; SOPTWARE: PATENTIN Ver. 2.0; SEQ ID NO 5; LENGTH: 7257; TYPE; PRT; ORGANISM: Sorangium cellulosum US-09-568-486-5
                                                                                                                                                                                                                                                                                                                                           RESULT 12
US-09-568-472-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  맑
                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                             APPLICANT: Schupp, 'APPLICANT: Ligon,
SEQ ID
                                                                                                                                                                                      APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                       Sequence 5, Application US/09568472 Patent No. 6358719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches 108;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local
                                                                                                                                                                                                                                                                                                     Patent No.
                CURRENT APPLICATION NUMBER: US/09/568,472
CURRENT FILING DATE: 2000-05-10
PRIOR APPLICATION NUMBER: 09/335,409
PRIOR FILING DATE: 1999-06-17
NUMBER OF SEQ ID NOS: 30
SOFTWARE: Patentin Ver. 2.0
                                                                                                                              APPLICANT: CYr, Devon
APPLICANI: Georlach, Joern
TITLE OF INVENTION: GENES FOR THE BIOSYNTHESIS OF
FILE REFERENCE: 4-30582A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CURRENT APPLICATION NUMBER: US/09/568,486
CURRENT FILING DATE: 2000-05-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4903
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4805 IPAEWPLQGVIHAAGALDD-------GVLDEQTTDRFSRVLAPKVTGAW----
                                                                                                                                                                                                                                                                                                                                                                                                                     5208 ILPE 5211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4847
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      214 LPPSWHIKQLYLQHRVLDQMRSFGMTPVLPAFAGHVPEAVTRVFPQVNVTKM-GSWGHFN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                          AVSE 632
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VRGKMTT-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      G-----GVADPESFWRLLEEGSDAVVEVPHERWD--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SLOMNTSIWYNRSDVFEAWRLLLTSAPSLATSPAFRYDLLDLTRQAVQELVSLYYE---E 578
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           --GALPEARRADEVRKVVQAEIARVLSWSAASAVPVDRPLSDLGLDSLTAVELRNVLGQR 5055
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CSYSCSFLLAPEDPIFPIIGSLELELIKEFGTDHIYGADTFNEMQPPSSEPSYLAAATT 332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ARSAYLSKELASLLRAGGVLA----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VGATLPATLAFDHPTVDALTRWLLDKVLAVAEPSVSSAKSSPQVALDEPIAIIGIGCRFP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       YGVS-----HPDAGAAWRLLLRSVYNCSGEACRGHNRSPLV------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTGMAPEGISQNEVVYSLMAE----LGWR----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SLDVRAASQ-----ASGAAVPPVWRALVRAEARHTAAGAQGAL-----AARL-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VLDLFAESOPVYTRTASFOGOPFIWCMLHNFGGNHGLFGALEAVNGGPEAARLFPNSTMV 439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AWGPWSDGGMAAGLSAA-----LQARLARHGMGALSPAQGTALLGQALARPETQLGAM 4955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ---NLHELTAGNDLAFFVLFS-SMSGLLGSAGQSNYAAANTFLDALAAHRRAEGLAAQSL
                                                                                                                                                                                                        Molnar, Istvan
Zirkle, Ross
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A------VYEAMTAVDTEAVWLLQGWLFQHQPQFWGPAQIRAVLG---AVPRGRL--L 379
                                                                                                                                                                                                                                               Ligon, James
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                   Thomas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           22.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -RFGGFLSDIDRFDPAFFGISPREATIMDPQQRLLLETSWEAFERAG 5207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         %; Score 113; DB 4; I
%; Pred. No. 4;
51; Mismatches 183;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -YELLPALDEVLASDSRFLL-GSWLEQARAA 628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ---KDPVPDL-----AAWVTSFAARR 482
                                                                                                                                                    EPOTHILONES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 7257;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels 142;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -IDAFYDPDPD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -RRP 521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4902
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             22;
```

```
APPLICANT: Cyr, Devon
APPLICANT: Goerlach, Joern
APPLICANT: Goerlach, Joern
TITLE OF INVENTION: GENES FOR THE BIOSYNTHESIS OF EPO
FILE REFERENCE: 4-30582A
CURRENT APPLICATION NUMBER: US/09/567,899
CURRENT FILING DATE: 2000-05-10
PRIOR APPLICATION NUMBER: 09/335,409
PRIOR APPLICATION NUMBER: 09/335,409
PRIOR FILING DATE: 1999-06-17
NUMBER OF SEQ ID NOS: 30
SOFTWARE: Patentin Ver. 2.0
SEQ ID NO 5
SEQ ID NO 5
SEQ ID NO 5
SEQ ID NO 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 뮹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ; LENGTH: 7257
; TYPE: PRT
; ORGANISM: Sorangium cellulosum
US-09-568-472-5
                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 13
US-09-567-899-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       $
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                   ; TYPE: PRT ; ORGANISM: Sorangium cellulosum US-09-567-899-5
                                                                                                                                                                                                                                                                                                                                                                                    Sequence 5, Application US/09567899 Patent No. 6383787 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches 108;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                  APPLICANT: Schupp, Thomas
APPLICANT: Ligon, James
APPLICANT: Molnar, Istvan
APPLICANT: Zirkle, Ross
                                                                                                       LENGTH: 7257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4805
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4903
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4847
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5208 ILPE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5056 VGATLPATLAFDHPTVDALTRWLLDKVLAVAEPSVSSAKSSPQVALDEPIAIIGIGCRFP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4956 SĹĎVRÁASÓ-----ÁSGAAVÞPVWRALVRAEARHTAAGAQGAL-----AARĹ-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3
3
3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             214 LPPSWHIKQLYLQHRVLDQMRSFGMTPVLPAFAGHVPEAVTRVFPQVNVTKM-GSWGHFN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AVSE 632
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SLOMNTSIWYNRSDVFEAWRLLLTSAPSLATSPAFRYDLLDLTRQAVQELVSLYYE---E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTGMAPEGISQNEVVYSLMAE----LGWR-----KDPVPDL-----AAWVTSFAARR 482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VLDLFAESOPVYTRTASFOGOPFIWCMLHNFGGNHGLFGALEAVNGGPEAARLFPNSTMV 439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AWGPWSDGGMAAGLSAA-----LQARLARHGMGALSPAQGTALLGQALARPETQLGAM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ---nlheítagnólaffylfs-smsgilgsagosnyaaantfidalaahrraegiaaosi 4902
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CSYSCSFLLAPEDPIFPIIGSLFLRELIKEFGTDHIYGADTFNEMQPPSSEPSYLAAATT 332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IPAEWPLQGVIHAAGALDD------GVLDEQTTDRFSRVLAPKVTGAW----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VRGKMTT-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ARSAYISKELASIIRAGGVLA-----YELLPALDEVLASDSRFIL-GSWLEQARAA 628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     YGVS----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       --GALPEARRADEVRKVVQAEIARVLSWSAASAVPVDRPLSDLGLDSLTAVELRNVLGQR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A-----vybamtavdteavwllogwleohopofwgpaoiravlg---avprgrl--l
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -GVADPESFWRLLEEGSDAVVEVPHERWD--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   22.9%;
2.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REGGELSDIDREDPAFEGISPREATTMDPQQRLLLETSWEAFERAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 51; Mismatches 183;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 113;
Pred. No. 4;
 Score 113;
Pred. No. 4
 4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 4; Length 7257;
                 DB
                 4
                 Length
                                                                                                                                                                                                                                                                   EPOTHILONES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   142;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               --IDAFYDPDPD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  578
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5055
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                272
```

```
CURRENT APPLICATION NUMBER: US/09/252,991A
CURRENT FILING DATE: 1999-02-18
PRIOR APPLICATION NUMBER: US 60/074,788
PRIOR FILING DATE: 1998-02-18
PRIOR APPLICATION NUMBER: US 60/094,190
PRIOR APPLICATION NUMBER: US 60/094,190
PRIOR FILING DATE: 1998-07-27
NUMBER OF SEQ ID NOS: 33142
SEQ ID NO 31822
SEQ ID NO 31822
LENGTH: 1419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9
    밁
                                   S
                                                                               밁
                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-09-252-991A-31822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               윩
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                         US-09-252-991A-31822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GENERAL INFORMATION:
APPLICANT: Marc J. Rubenfield et al.
APPLICANT: MATC J. Rubenfield et al.
TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO PSEUDOMONAS
TITLE OF INVENTION: AERUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS
FILE REFERENCE: 107196.136
GUILLER REFERENCE: 107196.136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 31822, Application US/09252991A Patent No. 6551795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches 108;
                                                                                                                                                           Matches 100;
                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                            ORGANISM: Pseudomonas aeruginosa
                                                                                                                                                                                Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4903
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4847
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5208 ILPE 5211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5056 VGATLPATLAFDHPTVDALTRWLLDKVLAVAEPSVSSAKSSPQVALDEPIAIIGIGCRFP 5115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4956 SLDVRAASQ-----ASGAAVPPVWRALVRAEARHTAAGAQGAL-----AARL-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4805 IPAEWPLOGVIHAAGALDD-------GVLDEQTTDRFSRVLAPKVTGAW----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         629 AVSE 632
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                273 CSYSCSFLLAPEDPIFPIIGSLFLRELIKEFGTDHIYGADTFNEMQPPSSEPSYLAAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           214 LPPSWHIKQLYLQHRVLDQMRSFGMTPVLPAFAGHVPEAVTRVFPQVNVTKM-GSWGHFN
                                                                                                                 349 LQGWLFQHQPQFWGPAQIRAVLGAVP-----RGRLLVLDLFAESQPVYTRTA---SFQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTGMAPEGISQNEVVYSLMAE----LGWR------KDPVPDL-----AAWVTSFAARR 482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AWGPWSDGGMAAGLSAA-----LOARLARHGMGALSPAQGTALLGQALARPETQLGAM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ---nlheltagnolaffylfs-smsgllgsagosnyaaantfldalaahrraeglaaqsl
GTQPWI-----RVGGGPPGFGNLPAALGGRLVGYYANGGEANLRRLFEAVQRWHAGLPVD 289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              YGVS-----HPDAGAAWRLLLRSVYNCSGEACRGHNRSPLV-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VIDLEAESQEVYTRTASEQGOEFIWCMLHNEGGNHGLEGALEAVNGGEEAARLEENSTMV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ą-----VYEAMTĄVDTEAVWIĻQGWIFQHQPQFWGPĄQIRĄVIG---AVPRGRI--L
                                          -- QPFIWCMLHNFGGNHGLFGALEAVNGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ARSAYLSKELASILRAGGVLA------YELLPALDEVLASDSRFLL-GSWLEQARAA 628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SIQMNTSIWYNRSDVFEAWRLLLISAPSLATSPAFRYDLLDLTRQAVQELVSLYYE---E 578
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    --GALPEARRADEVRKVVQAEIARVLSWSAASAVPVDRPLSDLGLDSLTAVELRNVLGQR
                                                                             LAGWAREAGVELRG---LRLGIGEAPPGEWLDGGNLLILDTPRPTDRAQVEEALGERLQG 234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -GVADPESFWRLLEEGSDAVVEVPHERWD-----
                                                                                                                                                                              2.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RFGGFLSDIDRFDPAFFGISPREATIMDPQQRLLLETSWEAFERAG
                                                                                                                                                           40;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       51,
                                                                                                                                                           Score 108; DB 4; Length 1419;
Pred. No. 0:76;
10; Mismatches 148; Indels 16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       183;
                                              ---PEAARLFPNSTMVGTGMAPE 446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                               Indels 168;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       142;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -IDAFYDPDPD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -RRP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5055
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    272
                                                                                                                              399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4902
                                                                                                                                                                  23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          22;
```

```
S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     B
                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ; TYPE: PRT ; ORGANISM: Pseudomonas aeruginosa US-09-252-991A-33024
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-09-252-991A-33024
Search completed: February 13, 2004, 16:18:02 Job time : 26 secs
                                                                                                                                            Ş
                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                        멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 33024, Application US/09252991A
Patent No. 6551795
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                            Query Match 2.7%; Score 107.5; DB 4; Length 405; Best Local Similarity 35.6%; Pred. No. 0.1; Matches 47; Conservative 9; Mismatches 57; Indels 19.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQ ID NO 33024
LENGTH: 405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION NUMBER: US 60/094,190
PRIOR FILING DATE: 1998-07-27
NUMBER OF SEQ ID NOS: 33142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Marc J. Rubenfield et al.
TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO PSEUDOMONAS
TITLE OF INVENTION: AERUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS
FILE REFERENCE: 107196-136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CURRENT APPLICATION NUMBER: US/09/252,991A
CURRENT FILING DATE: 1999-02-18
PRIOR APPLICATION NUMBER: US 60/074,788
PRIOR FILING DATE: 1998-02-18
PRIOR FILING DATE: 1998-02-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           542 LLLTSAPSLATSPAFRYDLLDLTRQAVQELVSLYYEE-----ARSAYLSKELASL-- 591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    490 AGAAWRLLLRSVYNCSGEACRGHNRSPLVRRPSLQMNTSIWYNRSDVFEAWR------ 541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                546 RLLGG----YYRPQ---TLDALYRDGLAASLPLDAY 574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               661 KQLAGLVANYYTPRWRLFLEALV-DSVAQGIPFQQH 695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      501 PEGEKNVAASHLNVPASLARLGEALRAAGYRVATSD----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     623 -----EQARAAAVSEAEADFYEQNSRYQLTLWGPEGNILDYAN 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         443 MPETWGMSDPLVISALENGEPKLMÅG--QÅEALLDKLDRLLRLRRLPVADKHLALMFWNH 500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            386 QALVNLQHLQNGPARRAEFLALD---VPVLQTLGYRDGNEADWLAAASGVAPRTVAAFLG 442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     346 TGAIDELLRRS--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     290 ALPAPQP----LAQAGFYHPDAPAPFAGLADYLAWGASRWASDAPRIAFLIPRGAIADAQ 345
                                                                                                     362
                                                                                                                                                       118
                                                                                                                                                                                                           306 VRQPAAPALGGGAGARALVRGELAGLAGAATRHAGARS--GTHRPRRSA--GLPQPASDV 361
                                                                                                                                                                                                                                                                                                               251 AAGGAVALRGCRWRRRGAAQRPGPGRRHRPAARGW--RAVGKVPVAGVA---RRALAGEP 305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          447 GISQNEVVYSIMAELGWRKDPVP------DLAAWVTS-----FAARRYGVSHPD 489
                                                                                                                                                                                                                                                       61 GLD--TYSLGGGGAARVRVRGS-TGVAAAAGLHRYLRDFCGCHVAWSGSQLRLPRPLPAV 117
                                                                                                                                                                                                                                                                                                                                                           8 AAVGVIII.AGA----GGAA---GDEAREAAAVRALVARII.GPGPAADFSVSVERALAAKP 60
                                                                                                        PĠSĹVRFRPRKH 373
                                                                                                                                                       PGELTEATPURY 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -----ASDSRFLLGSWL- 622
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ----ERHGQAPL------AVWFDDSDP-EALRKSFAGADV 385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -----ESALIDTAQ 545
                                                                                                                                                                                                                                                                                                                                                                                                                  19; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                     80
```

```
Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            801455 seqs, 209382283 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 MEAVAVAAAVGVLLLAGAGG......VDLAKKIFLKYYPGWVAGSW 743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-09-836-613-2
3939
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        February 13, 2004, 16:15:30 ; Search time 56 Seconds (without alignments) 2778.054 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                  Published Applications AA:*
.: /cgn2_6/ptodata/1/pubpaa
b: /cgn2_6/ptodata/1/pubpaa
cgn2_6/ptodata/1/pubpaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GenCore version 5.1.6 Copyright (c) 1993 - 2004 Compugen Ltd.
gn2_6/prodata/1/pubpaa/US08_PUBCOMB.psp:*
cgn2_6/ptodata/1/pubpaa/US09A_PUBCOMB.psp:*
/cgn2_6/ptodata/1/pubpaa/US09A_PUBCOMB.psp:*
/cgn2_6/ptodata/1/pubpaa/US09B_PUBCOMB.psp:*
/cgn2_6/ptodata/1/pubpaa/US09B_PUBCOMB.psp:*
/cgn2_6/ptodata/1/pubpaa/US09_NEW_PUB.psp:*
/cgn2_6/ptodata/1/pubpaa/US10A_PUBCOMB.psp:*
/cgn2_6/ptodata/1/pubpaa/US10C_PUBCOMB.psp:*
/cgn2_6/ptodata/1/pubpaa/US10C_PUBCOMB.psp:*
/cgn2_6/ptodata/1/pubpaa/US10C_PUBCOMB.psp:*
/cgn2_6/ptodata/1/pubpaa/US10_PUBCOMB.psp:*
/cgn2_6/ptodata/1/pubpaa/US10_PUBCOMB.psp:*
/cgn2_6/ptodata/1/pubpaa/US60_PUBCOMB.psp:*
                                                                                                                                                                                                                                                                                                                                                                                                                   _6/ptodata/1/
                                                                                                                                                                                                                                                                                                                                                                                      6/ptodata/1/pubpaa/US07
                                                                                                                                                                                                                                                                                                                                                            /pubpaa/PCT_NEW_PUB.pep:*
/pubpaa/US06_NEW_PUB.pep:*
/pubpaa/US06_PUBCOMB.pep:*
/pubpaa/US07_NEW_PUB.pep:*
/pubpaa/US07_NEW_PUB.pep:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PUBCOMB.pep:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             801455
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

Ś
됳
Š
RI
ES

15	14	13	12	11	10	v	œ	7	መ	ຫ	4.	ω	2	-	Result No.
117.5	118.5	118.5	118.5	118.5	118.5	118.5	118.5	118.5	121	147.5	827.5	832.5	2120	3939	Score
3.0	з. О	3.0	3.0	3.0	3.0	3.0	3.0	3:0	3.1	3.7	21.0	21.1	53.8	100.0	% Query Match
497	7968	2630	2596	1665	1610	1351	871	469	4342	101	1038	728	402	743	Length
12	14	14	15	ø	15	15	μ (5	15	9	12	15	15	12	11	B
.US-09-820-788-4	US-10-077-130-5	US-10-077-130-2	US-10-307-019-6	US-09-858-664A-2	US-10-307-019-4	US-10-307-019-1	US-10-307-019-7	US-10-156-761-9695	US-09-815-242-5107	US-09-864-408A-3432	US-10-156-761-13515	US-10-156-761-9552	US-10-029-386-33001	US-09-836-613-2	ID
Sequence 4, Appli	Sequence 5, Appli	Sequence 2, Appli	Sequence 6, Appli	Sequence 2, Appli	Sequence 4, Appli	Sequence 1, Appli	Sequence 7, Appli	Sequence 9695, Ap	Sequence 5107, Ap	Sequence 3432, Ap	Sequence 13515, A	Sequence 9552, Ap	Sequence 33001, A	Sequence 2, Appli	Description

45	44	43	42	41	40	39	38	37	36	S	ω 4	ω ω	32	31	30	29	28	27	20	25	24	23	22	21	20	19	18	17	ŀ
104	104	104	104	104	104	104	104	104	104	104	104.5	105	105.5	106	106	106.5	108.5	109.5	109.5	113	113	113.5	113.5	113.5	114	114	115.5	117.5	
2.6																												3.0	
654	654	654	654	654	654	654	654	654	581	581	726	4150	527	310	308	4498	796	1377	1377	7257	717	771	619	567	823	473	3668	767	:
11	11	11	10	10	10	10	10	10	9	9	12	11	12	9	10	15	15	12	9	14	12	12	12	12	12	12	12	15	Ì
US-09-906-838-177	-09-906-742-L	- 1	-09-907-841-1	-09-907	-902-853-	-09-905-	-088B	09-320-1	82-8	3-6	US-10-369-493-23643	308-880-2	-69	-826-909-2	US-09-738-626-6728	10-156-761-9	0-156-761-1	0-287-274-	-815-242-10	-10-	-10-369-493-	0-369-493-15	-10-369-493-1580	-10-369-493-1618	-10-369-493-10	-1051	0-402-842-4	US-10-156-761-7798	4 1 4 4 4 4 4
Sequence 177, App	equence 1//,	· ·	equence 1//,	equence 177,	Ф	177,	equence 177,	e 177,	8, Apr		Sequence 23643, A	2, Appl	Sequence 10548, A	Sequence 2, Appli	Sequence 6728, Ap	equence 9905,	14345,	e 467,	1038	, Appl	e 776	e 15	5803,	equence 1618	0184,	equence 10510,	e 4, Apr	equence 7	4

ALIGNMENTS

```
US-09-836-613-2
Sequence 2, Application US/09836613
Publication No. US20030039643A1
GENERAL INFORMATION:
APPLICANT: HOPWOOD, JOHN JOSEPH; SCOTT, HAMISH STEELE;
APPLICANT: HOPWOOD, JOHN JOSEPH; SCOTT, HAMISH STEELE;
APPLICANT: HOPWOOD, JOHN JOSEPH; SCOTT, HAMISH STEELE;
APPLICANT: HOPWOOD, JOHN JOSEPH; SANSON, DONALD STEWART
TITLE OF INVENTION: SYNTHETIC MARWALIAN

NAMESER OF SEQUENCES: 6
CCRRESPONDENCE ADDRESS:
ANDERSSEE, NIXON PEABODY LLP
STREET: 90 STEWART AVENUE
CITY: GARDEN CITY
STATE: NEW YORK
COUNTER: 1530
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER READABLE FORM:
MEDIUM TYPE: PLOPS/MS-DOS
SOFTWARE: PATENTIN Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLIC
```

```
; SEQUENCE DESCRIPTION: SEQ ID US-09-836-613-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity 100
Matches 743; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LENGTH: 743 amino
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURE:
                               541
                                                                                          481
                                                                                                                                                                                                                 361
                                                                                                                                                                                                                                                                            301
                                                                                                                                                                                                                                                                                                                                                                      241
                                                                                                                                                                                                                                                                                                                                                                                                  181
                                                                                                                                                                                                                                                                                                                                                                                                                                  181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             121
                                                           541
                                                                                                                      481
                                                                                                                                                    421
                                                                                                                                                                                   421
                                                                                                                                                                                                                                              361
                                                                                                                                                                                                                                                                                                         301
                                                                                                                                                                                                                                                                                                                                       241
 601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NAME/KEY:
LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LTEATPNRYRYYQNVCTQSYSFVWWDWARWEREIDWMALNGINLALAWSGQEAIWQRVYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GLDTYSLGGGGAARVRVRGSTGVAAAAGLHRYLRDFCGCHVAWSGSQLRLPRPLPAVPGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEAVAVAAAVGVLLLAGAGGAAGDEAREAAAVRALVARLLGPGPAADFSVSVERALAAKP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NAME/KEY:
LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY:
LOCATION:
                                                                                                                                                                                                                                                                                                                                                              VLPAFAGHVPEAVTRVFPQVNVTKMGSWGHFNCSYSCSFLLAPEDPIFPIIGSLFLRELI
                                                                                                                                                                                                                                                                                                                                                                                                                         ALGLTQAEINEFFTGFAFLAWGRMGNLHTWDGPLPFSWHIKQLYLQHRVLDQMRSFGMTF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEAVAVAAAVGVIJJIAGAGGAAGDEAREAAAVRAIVARIIGPGPAADFSVSVERALAAKP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LTEATPNRYRYYQNVCTQSYSFVWWDWARWEREIDWMALNGINLALAWSGQEAIWQRVYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GLDTYSLGGGGAARVRVRGSTGVAAAAGLHRYLRDFCGCHVAWSGSQLRLPRPLPAVPGE
                                                   RLLLTSAPSLATSPAFRYDLLDLTRQAVQELVSLYYEEARSAYLSKELASLLRAGGVLAY
                                                                                          RRYGVSHPDAGAAWRLLLRSVYNCSGEACRGHNRSPLVRRPSLQMVTSIWYNRSDVFEAW
                                                                                                         RRYGVSHPDAGAAWRLLLRSVYNCSGEACRGHNRSPLVRRPSLQMVTSIWYNRSDVFEAW
                                                                                                                                                     EAVNGGPEAARLFPNSTMVGTGMAPEGISQNEVVYSLMAELGWRKDPVPDLAAWVTSFAA
                                                                                                                                                                                EAVNGGPEAARLFPNSTMVGTGMAPEGISQNEVVYSLMAELGWRKDPVPDLAAWVTSFAA
                                                                                                                                                                                                               WGPAQIRAVLGAVPRGRLLVLDLFAESQPVYTRTASFQGQPFIWCMLHNFGGNHGLFGAL
                                                                                                                                                                                                                                      WGPAQIRAVLGAVPRGRLLVLDLFAESQPVYTRTASFQGQPFIWCMLHNFGGNHGLFGAL
                                                                                                                                                                                                                                                                                                   KEFGTDHIYGADTENEMQPPSSEPSYLAAATTAVYEAMTAVDTEAVWLLQGWLFQHQPQF 360
                                                                                                                                                                                                                                                                                                                                          VLPAFAGHVPEAVTRVFPQVNVTKMGSWGHFNCSYSCSFLLAPEDPIFPIIGSLFLRELI
                                                                                                                                                                                                                                                                                                                                                                                                      ALGLTQAEINEFFTGPAFLAWGRMGNLHTWDGPLPPSWHIKQLYLQHRVLDQMRSFGMTP
ELLPALDEVLASDSRFLLGSWLEQARAAAVSEAEADFYEQNSRYQLTLWGPEGNILDYAN
                             RLLLTSAPSLATSPAFRYDLLDLTROAVOELVSLYYEEARSAYLSKELASLLRAGGVLAY
                                                                                                                                                                                                                                                                               KEFGTDHIYGADIFNEMQPPSSEPSYLAAATTAVYEAMTAVDTEAVWLLQGWLFQHQPQF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   100.0%; Score 3939;
100.0%; Pred. No. 0;
ative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Potentially-glycosylated 532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Potentially-glycosylated 526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Potentially-glycosylated 513
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Potentially-glycosylated 503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Potentially-glycosylated 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Potentially-glycosylated 272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Potentially-glycosylated 261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Asn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Asn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Asn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Asn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Asn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Asn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Asn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        site
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            site,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  743;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                      300
                                                                                                                        540
                                                                                                                                                                                     480
                                                                                                                                                                                                                                                                               360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           120
   660
                                                                                            540
                                                                                                                                                       480
                                                                                                                                                                                                                  420
                                                                                                                                                                                                                                                420
                                                                                                                                                                                                                                                                                                                                          300
                                                                                                                                                                                                                                                                                                                                                                                                      240
                                                                                                                                                                                                                                                                                                                                                                                                                                   240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
```

Ş 밁 Ş B Š

8 밁

Ş 日 Ş B Ś 문 Ś 뮹 5 뮍 Ś 맒 Ş 맒

```
; OCGANISM: Homo sapiens
; FEATURE;
; FEATURE;
; OTHER INFORMATION: MAP TO U34879.1
; OTHER INFORMATION: EXPRESSED IN HELA;
; OTHER INFORMATION: EXPRESSED IN BRAIL
; OTHER INFORMATION: EXPRESSED IN HEAR;
OTHER INFORMATION: EXPRESSED IN BRAIL
; OTHER INFORMATION: SWISSPROT HIT: P5:
; OTHER INFORMATION: SWISSPROT HIT: P5:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-10-09-386-33001
S-quence 33001, Application US/10029386
Sequence 33001, Application US/10029386
Publication No. US20030194704A1
GENERAL INFORMATION:
APPLICANT: Penn, Sharron G.
APPLICANT: Penn, Sharron G.
APPLICANT: Hanzel, David R.
APPLICANT: Hanzel, David K.
APPLICANT: Hanzel, David K.
APPLICANT: HANZEL, DAVID K.
APPLICANT: HANZEL, DAVID K.
TITLE OF INVENTION: EXERESSION ANALYSIS TWO
                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       먕
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 맑
                                                                       뫄
                                                                                                          Ś
                                                                                                                                                                                5
                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                              ş
                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                            δ
                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PILE REFERENCE: AEOMICA-X-2
CURRENT APPLICATION NUMBER: US/10/029,386
CURRENT FILING DATE: 2001-12-20
NUMBER OF SEQ ID NOS: 34288
SOFTWARE: Annomax Sequence Listing Engine vers.
SEQ ID NO 33001
LENGTH: 402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity
Matches 402; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     601
  361
                                    702
                                                                           301
                                                                                                              642
                                                                                                                                                     241
                                                                                                                                                                                        582
                                                                                                                                                                                                                               181
                                                                                                                                                                                                                                                                                                         121
                                                                                                                                                                                                                                                                                                                                              462
                                                                                                                                                                                                                                                                                                                                                                                                                 402 FIWCMLHNFGGNHGLFGALEAVNGGPEAARLFENSTMVGTGMAPEGISQNEVVYSLMAEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   342 DTEAVMILIQGWIRQHQPQFWGPAQIRAVIGAVPRGRILIVIDIFAESQPVYTRTASFQGQP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    721
                                                                                                                                                                                                                                                                                                                                                                                     61
                                                                                                                                                                                                                                                                                                                                                                                                                                                            \vdash
                                                                                                                                                                                                                                                                                                           GWRKDPVPDLAAWVTSFAARRYGVSHPDAGAAWRLLLRSVYNCSGEACRGHNRSPLVRRP
                                                                                                                                                                                                                                                                                                                                      GWRKDPVPDLAAWVTSFAARRYGVSHPDAGAAWRLLLRSVYNCSGEACRGHNRSPLVRRP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GDTVDLAKKIFLKYYPGWVAGSW 743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KQLAGLVANYYTPRWRLFLEALVDSVAQGIFFQQHQFDKNVFQLEQAFVLSKQRYFSQPR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KQLAGLVANYYTERWRLELEALVDSVAQGIPFQQHQFDKNVFQLEQAFVLSKQRYPSQPR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SIQMNTSIWYNRSDVFEAWRLLLTSAPSIATSPAFRYDLLDLTRQAVQELVSLYYEEARS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GDTVDLAKKIFLKYYPGWVAGSW 743
FQLEQAFVLSKQRYPSQPRGDTVDLAKKIFLKYYPGWVAGSW
                            FQLEQAFVLSKQRYPSQPRGDTVDLAKKIFLKYYPGWVAGSW
                                                                           SRYQLTLWGPEGNILDYANKQLAGLVANYYTPRWRLFLEALVDSVAQGIPFQQHQFDKNV
                                                                                                      SRYQLTLMGPEGNILDYANKQLAGLVANYYTPRWRLFLEALVDSVAQGIPFQQHQFDKNV
                                                                                                                                                                                      AYLSKELASILRAGGVLAYELLPALDEVLASDSRFILGSWLEQARAAAVSEAEADFYEQN
                                                                                                                                                                                                                               SLOMNTSIWYNRSDVFEAWRLLLISAPSLATSPAFRYDLLDLTRQAVQELVSLYYEEARS
                                                                                                                                                                                                                                                                                                                                                                                   FIWCMLHNFGGNHGLFGALEAVNGGPEAARLFPNSTMVGTGMAPEGISQNEVVYSLMAEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                            DTEAVWLLQGWLFQHQPQFWGPAQIRAVLGAVPRGRLLVLDLFAESQPVYTRTASFQGQP
                                                                                                                                                     AYLSKELASILRAGGVLAYELLPALDEVLASDSRFLLGSWLEQARAAAVSEAEADFYEQN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    53.8%; Score 2120; DB 12; llarity 100.0%; Pred. No. 6.9e-185; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IN HELA, SIGNAL = 0.74
IN BRAIN, SIGNAL = 0.93
IN HEART, SIGNAL = 1.9
IN BONE MARROW, SIGNAL = 1.6
HIT: P54802, EVALUE 0.00e+00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EXON NUCLEIC ACID PROBES USEFUL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length
      402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                  701
                                                                                                                                                         300
                                                                                                                                                                                                                                                                                                                                                    521
                                                                                                                                                                                                                                                                                                                                                                                       120
                                                                                                                                                                                                                                                                                                                                                                                                                                461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       660
                                                                                                                                                                                                                                   240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FOR
```

```
Ś
                                                                     Ś
                                                                                                      밁
                                                                                                                                $
                                                                                                                                                                    В
                                                                                                                                                                                          S
                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                       맑
                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 3
US-10-156-761-9552
                                             片
                                                                                                                                                                                                                                                                                            문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM: Streptomyces avermitilis US-10-156-761-9552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: IKEDA, HARUO
APPLICANT: ISHIKAWA, JUN
APPLICANT: HORIKAWA, HIROSHI
APPLICANT: SHIBA, TADAXOSHI
APPLICANT: SHEBA, TADAXOSHI
APPLICANT: HATTORI, MASAHIRA
TITLE OF INVENTION: NOVEL POLYNUCLEOTIDES
FILE REFERENCE: 249-262
CURRENT APPLICATION NUMBER: US/10/156,761
CURRENT FILING DATE: 2002-05-29
PRIOR APPLICATION NUMBER: JP 2001-204089
PRIOR APPLICATION DATE: 2001-204089
PRIOR FILING DATE: 2001-204089
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR APPLICATION NUMBER: JP 2001-272697
PRIOR FILING DATE: 2001-08-02
NUMBER OF SEQ ID NOS: 15109
SEQ ID NO 9552
LENGTH: 728
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 9552, 1 Publication No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: OMURA, SATOSHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local
                                                                                                                                                                                                                                                                                                                                                                                                                    179
                586
                                                                                                                                        474
                                                                                                                                                                                                                                                                                                                                                                                                                                                  182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              122
                                                                                                         457
                                                                                                                                                                     403
                                                                                                                                                                                                   420
                                                                                                                                                                                                                                 350
                                                                                                                                                                                                                                                             361
                                                                                                                                                                                                                                                                                            295
                                                                                                                                                                                                                                                                                                                           302
                                                                                                                                                                                                                                                                                                                                                        239
                                                                                                                                                                                                                                                                                                                                                                                    242 LPAFAGHVPEAVTRVFPQVNVTKNGSWGHFNCSYSCSFLLAPEDPIFPIIGSLFLRELIK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                21.1%; Score 832.5; DB 15; Length al Similarity 31.9%; Pred. No. 8.3e-67; 239; Conservative 106; Mismatches 338; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   12 VILLAGAGGAAGDEAREAAAVRALVARLLGPGPAADFSVSVERALAAK------PG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       7
KELASILRAGGV-LAYELLPALDEVLASDSRFILGSWLEQARAAAVSEAEADFYEQNSRY
                                                                                                                                                                                                                                                                                            MFGGASTRYKMDLLHEGGSPGDVP--VGDAAKGVERALRAAHPGAVWVILGW--QHNPP-
                                                                                                                                                                                                                                                                                                                                                                                                                                                LGLTQAEINEFFTGPAFLAWGRMGNLHTWDGPLPPSWHIKQLYLQHRVLDQMRSFGMTPV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TEATFNRYRYYONVCTQSYSFVWWDWARWEREIDWMALNGINLALAWSGQEAIWQRVYLA 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RDTFQV-SGRTGRVTVTGGTPATQLTGLNWYLRNIADADINWAGRQLRLPRALPGLAGTV
                                                                                                                                                                                                 LEAVNGGPEAARLF----PNSTMVGTGMAPEGISONEVVYSLMAELGWRKDPVPDLAA
                                                                                                                                                                                                                                                                                                                         EF-GTDHIYGADTFNEMQPPSSEPSYLAAATTAVYEAMTAVDTEAVWLLQGWLFQHQPQF
                                                                                                                                                                                                                                                                                                                                                       FPGYFGTVPPGFADRNAGAHTVPQGTW----MGFARPDWLDPRTEHFTRVAAAFYRIQDE
                                                                                                                                                                                                                                                                                                                                                                                                                   FGYTDEELRKWIPGPAHQPWWLLQNLSAFPDPVSQQLLDARAALGRRIANRLRELGMTPV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LDTYSLGGGGAARVRVRGSTGVAAAAGLHRYLRDFCGCHVAWSGSQLRLPRPLPAVPGEL
                                                                                                                                      WVTSFAARRYGVSHPDAGAAWRLLLRSVYNCSGEACRGHNRSPLV-RRPSLQMNTSIWYN
                                                                                                                                                                                                                                                             WGPAQIRAVLGAVPRGRILVIDLFAESQPVYT-RTASFQGQPFIWCMLHNFGGNHGLFGA
                                                                                                         WFARWARSRYGGRDPHAEAAWDILRRTAYGTTRADSWSEGADGLFGARPSLAATKAASWS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TRRANVPHRFALNDTNDGYTGPYHDWTYWERELDVLALHGYNEVLVQTGADALHHRVFQE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VILITALIAAGSAG----AAVACDPASADG-APAAGSAATAARRILPRHWRQLTFRTAGG
                                             PKRIRYRPEEFEPALGELIKVRPGIRGSSAYRRDLIDVARQAISNRSRVLLPQIRTAYEA
                                                                          -----RSDVFE-AWRLLLTSAPSLATSPAFRYDLLDLTRQAVQELVSLYYEEARSAYLS
                                                                                                                                                                     ----ntpdwaslyerwrtrpgstlrgvallpeaadnnpaafalfselawregdl-dlra
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Application US/10156761
. US20030119018A1
                                                                                                                                                                                                                                 -RAIVDAVDKDRMLVVDGLCDRFFKVTDREADWHGTFYAFGSIWNFGG-HTTLGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               728;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  67;
                644
                                               576
                                                                                                         516
                                                                                                                                      532
                                                                                                                                                                    456
                                                                                                                                                                                                   473
                                                                                                                                                                                                                                402
                                                                                                                                                                                                                                                               419
                                                                                                                                                                                                                                                                                            349
                                                                                                                                                                                                                                                                                                                                                        294
                                                                                                                                                                                                                                                                                                                                                                                     301
                                                                                                                                                                                                                                                                                                                                                                                                                    238
                                                                                                                                                                                                                                                                                                                                                                                                                                                  241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    日
 片
                           S
                                                             밁
                                                                                       Ş
                                                                                                                        맑
                                                                                                                                                  Ś
                                                                                                                                                                                  밁
                                                                                                                                                                                                           S
                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                       맑
                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           吊
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-10-156-761-13515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR FILING DATE: 2001-08-02
NUMBER OF SEQ ID NOS: 15109
SEQ ID NO 13515
LENGTH: 1038
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TYPE: PRT
 415
                                                            362
                                                                                           361
                                                                                                                         306
                                                                                                                                                     301
                                                                                                                                                                                    250
                                                                                                                                                                                                                242
                                                                                                                                                                                                                                              190
                                                                                                                                                                                                                                                                             182
                                                                                                                                                                                                                                                                                                           130
                                                                                                                                                                                                                                                                                                                                          122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           692
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      635
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               577
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       701
                                                                                                                                                                                                                                                                                                                                                                        71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SATOSHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HARUO
```

```
; ORGANISM: Streptomyces avermitilis US-10-156-761-13515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match 21.0%; Score 827.5; DB 15; Length 1038; Best Local Similarity 29.9%; Pred. No. 4.1e-66; Matches 222; Conservative 121; Mismatches 359; Indels 41;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 13515, Application US/10156761 Publication No. US20030119018A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CURRENT APPLICATION NUMBER: US/10/156,761
CURRENT FILING DATE: 2002-05-29
PRIOR APPLICATION NUMBER: JP 2001-204089
PRIOR FILING DATE: 2001-05-30
PRIOR APPLICATION NUMBER: JP 2001-272697
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: ISHIKAWA, JUN
APPLICANT: HORIKAWA, HIROSHI
APPLICANT: SHIBA, TADAYOSHI
APPLICANT: SHIBA, TADAYOSHI
APPLICANT: SAKAKI, YOSHIYUKI
APPLICANT: HATTORI, MASAHIRA
TITLE OF INVENTION: NOVEL POLYNUCLEOTIDES
FILE REFERENCE: 249-262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     62 LDTYSLGGGGAARVRVRGSTGVAAAAGLHRYLRDFCGCHVAWSGSQLRLPRPLPAVPGEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      15 AIGLGTTLGTAIPAHATESPGEGPALDTAPARSALNRLL-PGHAGQFRLSL---VGRTRG
AHLWNEKFFAWRDKAGSALAGTAYLPEAADRDPAAFELFSELAWSAGKI-DRAAWFSSYA
                                                                                                                                                                                                                                                                                                                                     KEFGTDHIYGADTFNEMQPPSSEPSYLAAATTAVYEAMTAVDTEAVWLLQGWLFQHQPQF 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ERSTALSHRFALNDTNDGYTAPYADWSYWEHQIDLLALHGCNEVMVIAGTEAVYHRVLKD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TEATPNRYRYYQNVCTQSYSFVWWDWARWEREIDWMALNGINLALAWSGQEAIWQRVYLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RDRFRV-TGGTGRIQVSGTTPAVLLTGVHWYLKYVCGAHLAWNGGQLDLFRRLFAPARPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AVAVAAAVGVLLLAGAGGAAGD-EAREAAAVRALVARLLGPGPAADFSVSVERALAAKPG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QLTLW----GPEGNILDYANKQLAGLVANYYTPRWRLFLEALVDSVAQGIPFQQHQFDKN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KDTARFDRLTGVWLA--LMDLLEALLATDSRHLLGRWVADARAWGASAAERDRLAYDALS
                                                                                                                                                                                                                                                                        DVFGKAAHFKMDLLHEGGTAGDVP--VPGAARGVEKALQAAHPGATWVILGWEANPLP--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LPAFAGHVPEA-VTRVFPQVNVTKMGSWGHFNCSYSCSFLLAPEDPIFPIIGSLFLRELI 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FGYSDTEARAWLPAPSHQPWWLLQNLSGYGGPLSPELIAERAGLGRRICDRLRALGMAPV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LGLTQAEINEFFTGPAFLAWGRMGNLHTWDGPLPPSWHIKQLYLQHRVLDQMRSFGMTPV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VEQLEQAEVLSKORYPSOPRGDTVDLAKKI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LLTVWGTRAGADAGLRDYANREWAGLVGGLYRLRWSTYFAELRSASREGRTPKKTDW----
                                                         LEAVNGGPEAARLFPNSTMVGTGMAPEGISONEVVYSLMAELGWRKDPVPDLAAWVTSFA 479
                                                                                                                                                                                               WGPAQIRAVLGAVPRGRLLVLDLFAESQPVYT-RTASFQGQPFIWCMLHNFGGNHGLFGA
                                                                                                                                                                                                                                                                                                                                                                                                      LPGYYGHVPKGFVERNGGDAHVVPQGIWHGF----ERPDWLDPRTASFAAVAKSFYRHQK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -FALEDRWTRNPGGLATRPTGDTYQAAVRV 720
                                                                                                                              -ALLDAIDKKKMLIVDGVSDRYTSVTDREKDWGGTFYAFGTIPNFGGRTTIGAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                        361
                                                                                                                                     414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   15;
```

Ś

밁

뭥 Ş 밁 Ş 밁

밁 Ś

```
RESULT 5
US-09-864-408A-3432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-09-864-408A-3432
                                                                                                                                                                                                                                                                                                     US-09-815-242-5107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local S
Matches 31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CURRENT FILING DATE: 2001-05-24
PRIOR APPLICATION NUMBER: 60/206,690
PRIOR FILING DATE: 2000-05-24
NUMBER OF SEQ ID NOS: 9068
SOFTWARE: FastSEQ for Windows Version
SEQ ID NO 3432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 3432, Application US/09864408A
Publication No. US20040009474A1
GENERAL INFORMATION:
APPLICANT: Leach, Martin D.
APPLICANT: Shimkets, Richard A.
TITLE OF INVENTION: No. US20040009474A:
FILE REFERENCE: 21402-012
                                                                                                                                                                                                                                                               Sequence 5107, Apparent No. US200
                                                                                                                                                                                                                                         GENERAL INFORMATION:
                                                                                                                                          APPLICANT:
APPLICANT:
                                  APPLICANT: Xu, H. Howard
TITLE OF INVENTION: Identification of Essential Genes
TITLE OF INVENTION: Prokaryotes
                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                   APPLICANT: Haselbeck, Robert APPLICANT: Ohlsen, Kari L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CURRENT APPLICATION NUMBER: US/09/864,408A
  CURRENT APPLICATION NUMBER: US/09/815,242
                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TYPE: PRT
                                                                                                   PPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LENGTH: 101
                       REFERENCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               474 DFRYGGRDASAQKAWRALHDTAYQQHAVERSDAHDSLFCARPDLAANRAAEYAPRALTYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          593 RAGGVLAYELLPALDEVLASDSRFLLGSWLEQARAAAVSEAEADFYEQNSRYQLTLWG--
                                                                                                                                                                                                                                                                                                                                                                                   61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Н
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SL-ATLWLRLMGLSDEVTGTHPAFLLGPWINDARLLATDAGERAEFERTAKVLLTVWGGR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AWRL-----LLTSAPSLATSPAFRYDLLDLTROAVQELVSLYYEEARSAYLSKELASLL
                                                                                                                                                                                                                                                                                                                                                                                                                        RWRLFLEALVDSVAQGIPFQQHQFDKN 700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PGRFDAALSGLLGVAGGLRGSAAYTYDLVDVARQALAHRSRQYLPLLRAAYARKDAAAFT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ARRYGVSHPDAGAAWRLLLRSVYNCSGEACRGHNRSPLVRRPSLOMNTSIWY-NRSDVFE
                                                                                                                                                                                                                                                                                                                                                                                   RASKYFAYLTRSLOENRSFOLEEWRKD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                GPWLESAKSLAITEKERQQYEWNARTQVTMWYDNTETEQSKLHDYANKFWSGLLKSYYLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GSWLEQARAAAVSEAEADFYEQNSRYQLTLW-----GPEGNILDYANKQLAGLVANYYTP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WTRERKDYPLRPVGDPYRTAARV 731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FVLSKQRYPSQPRGDTVDLAKKI 730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATSDAGDLHEYAGREWNGLMADFYLPRWKKWLDALADALATGTPPAAVDW----FAVEEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ---PEGNILDYANKQLAGIVANYYTPRWRLFLEALVDSVAQGIPFQQHQFDKNVFQLEQA
                                                                                                                                                           Ohlsen, Kari L.
Zyskind, Judith W.
Wall, Daniel
                                                                              Yamamoto, Robert T
Xu, H. Howard
                                                                                                                    Carr, Grant
                                                                                                                                        Trawick, John D.
                                                                                                                                                                                                                                                                                Application US/09815242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                       ION: Prokaryotes ELITRA.011A
                                                                                                                                                                                                                                                               061569A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3.7%; Score 147.5; DB 12; 35.6%; Pred. No. 1.7e-05; ative 18; Mismatches 33;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Richard A.
o. US20040009474Alel Human Polynucleotides and Polypeptides Enc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4.0
                                                                                                                                                                                                                                                                                                                                                                                   87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       101;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            υı
--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       708
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    652
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          650
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       538
                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                               밁
                                                                                                 Ş
                                                                                                                                        B
                                                                                                                                                                            8
                                                                                                                                                                                                                      멼
                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                   片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-09-815-242-5107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CURRENT FILING DATE: 2001-03-21
PRIOR APPLICATION NUMBER: 60/191,078
PRIOR FILING DATE: 2000-03-21
PRIOR APPLICATION NUMBER: 60/206,848
PRIOR FILING DATE: 2000-05-23
PRIOR APPLICATION NUMBER: 60/207,727
PRIOR RILING DATE: 2000-05-26
PRIOR FILING DATE: 2000-05-26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOFTWARE: FastSEQ for Windows Version SEQ ID NO 5107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches 178;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION NUMBER: 60/269,308
PRIOR FILING DATE: 2001-02-16
NUMBER OF SEQ ID NOS: 14110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TYPE: PRT
ORGANISM: Pseudomonas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          OR APPLICATION NUMBER: 60/242,578
OR FILING DATE: 2000-10-23
OR APPLICATION NUMBER: 60/253,625
OR FILING DATE: 2000-11-27
OR APPLICATION NUMBER: 60/257,931
OR FILING DATE: 2000-12-22
OR FILING DATE: 2000-12-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local Similarity
                                                                                                                                                                                                                        1585
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1290
                                                                                                                                            1639
                                                                                                                                                                                                                                                                                                                                                                                      1474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1240 -PGAEGVTPICLDSLKLDNWPSQAPGLHLH--GDNLAYVIYTSGSTGQPKGVG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1181 VAICAERSPOLLVGILAIVKAGGAYVPLDPDYPSERLAYMLADSGVELLLTQAHLFERL-
                                                                                                                                                                                  471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   154
                                                                                                                                                                                                                                                               415
                                                                                                                                                                                                                                                                                                                                             363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4 VAVAA-----AVGVLLLAGAGGA----
                         RY-
                                                                                                                                                                                                                                                                                                                                         ---PAQIRAVLGAVP---RGRLLVLDLFAESQPV--YTRTASFQGQPFIWCMLHNFGGNH
                                                                                                                                                                                                                      RLRAALQA----ELPEYMVPTQLMRLAQMPLGPS-GKLDTRALPEPVWQQREHVEPRTE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RLFSGGEALPAE-----LRNRVLQR-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IDWMALNGINLALAWSGQ------EAIWQRVYLALGLTQAEINEFFTGPAFLAWGRMG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            --NTHAALA-ERLQWMQATYTLDGDDVLMQKAP--
                                                                                                                                                                                                                                                               GLFGALEAVNGGPEAARLFPNSTMVGTGMAPEGISQNEVVYSLMAELGWRK----DPVPD
                                                                                                                                                                                                                                                                                                       RIEPEEIQARLLAQPGVAQAVVVIREGVAGSQLVGYYTGAVGAEAEA-----
                                                                                                                                                                                                                                                                                                                                                                                      LGLARGYLGRPALSAERFVADPFSAAGERLYRTGDRARWNADGVLEYLGRLDQQVKLRGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ----HWQC-----RAEDGERSPIGRPLGNVVCRVLDAEF---NLLPAGVAGELCIGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GSWGHFNCSYSCSFLLAPED----PIFPIIGSLFLRELIKEFGTDHIYGADTFNEM----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NLHTWDGPLPPSWHIKQLYLQHRVLDQMRSFGMTPVLPAFAGHVPEAVTRVFPQVNVTKM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CFWPLVTGCRLVLAAPGEHRDPARLVELVRQFGVTTLHFVPPLLQLFIDEPGVAACGSLR 1388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FCGCHVAWSGSQLRLPRPLPAVPGE--LTEATPNRYRYYQNVCTQSYSFVWWDWARWERE 153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GPG-----PAADFSVSVERALAAKPGLDTYSLGGGGAARVRVRGSTGVAAAAGLHRYLRD
                                                             EAFCEQVRAAQAAGRTDSHGAIRRIDREQPVPLSYSQQRMWFLWQL----EPD---SPAY
                                                                                                                                            LORRIAAIWSEVLGLPRYGLRDDFFELGGHSLLATRIVSRTRQACDVELPLRALFEASEL
                                                                                                                                                                                  L----AAWVTSFAARRYG---
                                                                                                                                                                                                                                                                                                                                                                                                                            -----QPPSSEPSYLAAATTAVYEAMTAVDTEAVWLLQGWL-----FQHQPQFWG-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative 101; Mismatches 318;
                                                                                                   ---GEACRGHNRSPLVRRPSLQMNTSIWYNRSDVFEAWRLLLTSAPSLATSPAF
-DLLDLTR--QAVQELVSLYYEBARSAYLSKELASLLRA---GGV-LAYELL 603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     aeruginosa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         21.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 121;
Pred. No. 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LPAVALHNRYGPTET - - AINVT - -
                                                                                                                                                                                  -VSHPDAGAAWRLLLRSVYNCS--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               --AGDEAREAAAVRA-LVARLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 4342;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -VSFDVSVW--E
                                                                                                                                                                                                                                                                                                         ----EQNQ 1584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                        1533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         265
                                                                    1751
                                                                                                          556
                                                                                                                                                1698
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1239
                                                                                                                                                                                                                               1638
                                                                                                                                                                                                                                                                                                                                                 414
                                                                                                                                                                                                                                                                                                                                                                                                                              362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        44;
```

Ş 망 Š

В

185 HGVDVGGGFVEL 455 YSLMAELGWRKD	67 305 101 356 141	Ouery Match 3.0%; Score 118.5; DB 15; Length 469; Best Local Similarity 22.1%; Pred. No. 0.078; Matches 126; Conservative 49; Mismatches 167; Indels 229; Gaps 32; Matches 126; Conservative 49; Mismatches 167; Indels 229; Gaps 32; Qy 208 HTWDGPLPPSWHIKQLYLQHRVLDQMRSFGMTPVLPAFA 246 Qy 208 HTWDGPLPPSWHIKQLYLQHRVLDQM	SULT 7 -10-156-761-9695 -Application US/10156761 publication No. US20030119018A1 GENERAL INFORMATION: ASTOSHI APPLICANT: ISHIKAWA, JUN APPLICANT: HORIKAWA, HIROSHI APPLICANT: SHIBA, TADAYOSHI APPLICANT: SHIBA, TADAYOSHI APPLICANT: HATTORI, MOVEL POLYNUCLEOTIDES FILE REFERENCE: 249-262 CURRENT APPLICATION NUMBER: US/10/156,761 CURRENT APPLICATION NUMBER: US/10/156,761 CURRENT FILING DATE: 2002-05-29 PRIOR APPLICATION NUMBER: JP 2001-204089 PRIOR APPLICATION NUMBER: JP 2001-204089 PRIOR FILING DATE: 2001-08-02 PRIOR FILING DATE: 2001-08-02 PRIOR FILING DATE: 2001-08-03 PRIOR FILING DATE: 2001-08-02 PRIOR FILING DATE: 2001-08-02 PRIOR FILING DATE: 201-08-02 PRIOR FILING DATE: 201-08-02 PRIOR APPLICATION NUMBER: JP 2001-272697 PRIOR FILING DATE: 201-08-02 PRIOR FILING DATE: 201-08-02 PRIOR APPLICATION NUMBER: JP 2001-272697 PRIOR FILING DATE: 201-08-02 PRIOR APPLICATION NUMBER: JP 2001-272697 PRIOR FILING DATE: 201-08-02 PRIOR APPLICATION NUMBER: JP 2001-272697 PRIOR FILING DATE: 201-08-02 PRIOR APPLICATION NUMBER: JP 2001-272697 PRIOR FILING DATE: 201-08-02 PRIOR APPLICATION NUMBER: JP 2001-272697 PRIOR FILING DATE: 201-08-02 PRIOR APPLICATION NUMBER: JP 2001-272697 PRIOR FILING DATE: 201-08-02 PRIOR APPLICATION NUMBER: JP 2001-272697 PRIOR FILING DATE: 201-08-02 PRIOR APPLICATION NUMBER: JP 2001-272697	Db 1752 NVGGLARLSGPLDVARFEAALQALVQ-RHETLRTTPPSVDGVPVQRVHGDGGLHMDWQDF 1810 Qy 604 PALDEVLASDSRFLLGSWLEQARAAAVSEAEADFYEQNSRYQLTLWGPE 652
Db 296 SRSLFHFPGRLIPLDEPABLGLRERVKASVEHISRILKGRPEGLEKEGPPRKKP 349 267 SWGHFNCSYSCSFLLAPEDPIFPIIGSLFLRELIKEFGTDHIYGADTFNEMQPPSSEPSY 326 267 SWGHFNCSYSCSFLLAPEDPIFPIIGSLFLRELIKEFGTDHIYGADTFNEMQPPSSEPSY 326 269 SRSLFHFYSGLKSWDRAPTFLRELSDETVV 378 350 GLASFRLSGLKSWDRAPTFLREL	Db 135 SQSEEQQEARAESPLPQVSARPVPEVGRAPTRSSP	OY	Sequence 7, Application US/10307019 Sequence 7, Application US/10307019 Publication No. US20030108533A1 GENERAL INFORMATION: APPLICANT: Stanton, Lawrence APPLICANT: Stons, INC. TITLE OF INVENTION: MEDIATORS OF SIGNAL TRANSDUCTION FILE REFERENCE: SCIOS.021DV1 CURRENT FILING DATE: 2002-11-26 PRIOR APPLICATION NUMBER: US/10/307,019 CURRENT FILING DATE: 2000-04-13 PRIOR APPLICATION NUMBER: 60/129,552 PRIOR FILING DATE: 1999-04-16 NUMBER OF SEQ ID NOS: 9 SOFTWARE: FastSEQ for Windows Version 4.0 SEQ ID NO 7 LENGTH: 871 TYPE: PRI ORGANISM: Homo sapiens ORGANISM: Homo sapiens 10-307-019-7 Query Match Best Local Similarity 18.6%; Pred. No. 0.2; Bass Local Similarity 18.6%; Pred. No. 0.2; Matches 165; Conservative 97; Mismatches 307; Indels 319; Gaps	Qy 595 GGVLAYELLPALDEVLASDSRFLLGSWLEQARAAAVSEAEADFYEQNSRYQLTLWGPEGN 654

Db 501 GSASQASSQVSSLRVGSQVGTEPGPSLDAEGWTGEAEDLSDSTPTLQRPQEQATWRKF 560 Qy 66 SLGG-GGAARVRVRGSTGVAAAAGLHRYLRDFCGCHVAWGGSQLR 109 Db 561 SLGGRGGYAGYAGYGTFAFGGDAGGMLGQGBMWARIAWAVSQSEEEEQBEARAE 614 Qy 110LPRPLPAVPGELTEATPNRYRYYQNVCTQSYSFVWMDWARWE 151 Db 615 SQSEEQQEARAESPLPQVSARPVPEVGRAPTRSSP	PILING DATE: 2002- PPLICATION NUMBER: 00 ILING DATE: 2000-04- PPLICATION NUMBER: 6 ILING DATE: 1999-04- OF SEQ ID NOS: 9 E: FastSEQ for Windov 1 1351 SM: Homo sapiens O19-1 3.0 al Similarity 18.6 165; Conservative 19 GGAAGDEAREAAAVRA		Oy 445 PEGISQNEVVYSLMAELGWRKDPVDDLAAWVTSFAARRYGVSHDDAGAA 493 Db 464
PRIOR FILING DATE: 2000-0-13 PRIOR PRIOR PEDICATION NUMBER: 60/129,552 PRIOR FILING DATE: 1999-04-16 PRIOR PEDICATION UNDES: 9 SOFTWARE: FastSEQ for Windows Version 4.0 SEQ ID NO 4 LENGTH: 1610 TYPE: PRT OUGHANISM: Homo sapiens US-10-307-019-4 Ouery Match Best Local Similarity 18.6%; Pred. No. 0.51; Matches 165; Conservative 97; Mismatches 307; Indels 319; Gaps 40; Matches 165; Conservative 18:	Qy 678 FLEALUDYAQGIPPQOHQFENNVFQL-EXCRYPSQERG 721 Db 1213 YLETWAPELLEGQGAVPQTDIWAIGVTAFIMLSAEXPVSSEG 1254 RESULT 10 US-10-307-019-4 ISEQUENCE 4, Application US/10307019 Publication No. US20030108533A1 GENERAL INFORMATION: APPLICANT: Stanton, Lawrence APPLICANT: Stanton, Lawrence APPLICANT: SCIOS, INC. TITLE OF INVENTION: MODIFICE 105/10/307,019 CURRENT APPLICATION NUMBER: US/10/307,019 CURRENT APPLICATION NUMBER: US/10/307,019 FRICR APPLICATION NUMBER: 09/548,473	982 WTTLASDIFDCCYLTSKLSRGGTYTFRTACVSKAGMGPYSSPSEQVLLGGPSHLA 510 RGHNRSPLVRRPSLQMNTSIWYNR-SDVFEAWRLLLTSAPSLATSPAFRYDLLDL 510 QCRSAQPLPSTKTFAFQTQIQRGRFSVVRQCWEKASGRALAAKIIPYHPKDKTAV 567 AVQELVSLYYEEARSAYLS-KELASLLRAGGVLAYELLPALDEVLASDSRFLLGS 567 AVQELVSLYYEEARSAYLS-KELASLLRAGGVLAYELLPALDEVLASDSRFLLGS 567 AVQELVSLYYEEARSAYLS-KELASLLRAGGVLAYELLPALDEVLASDSRFLLGS 567 AVQELVSLYYEEARSAYLS-KELASLLRAGGVLAYELLPALDEVLASDSRFLLGS 568 ALKGLRHPHLAQLHAAYLSPRHLVLILELCSGPELLPCLAE-RASYSESEVKD 626 RAAAVSEAEADFYEQNSRYQLTLWGPEGNILDYANKQLAGLVANYYT 519 LSATQYLHNQHILHLDLRSENMIITEYNLLKVVDLGNAQSLSQEKVLPS	Qy 214 LPPSWHIKQLYLQHRVLDQMRSFGMTPVLPAFAGHVPEAVTRVFPQVNVTKMG 266

```
RESULT 11
US-09-858-664A-2
                                                                                                                                                                                                  Sequence 2, Application US/09858664A Patent No. US20020072491A1 GENERAL INFORMATION:
APPLICANT: WEI, Ming-Hui, et al.
TITLE OF INVENTION: ISOLATED HUMAN KINASE PROTEINS,
TITLE OF INVENTION: ACID MOLECULES ENCODING HUMAN:
TITLE OF INVENTION: THEREOF
FILE REFERENCE: CL000927-CIP
CURRENT APPLICATION NUMBER: US/09/858,664A
CURRENT FILING DATE: 2001-05-17
PRIOR APPLICATION NUMBER: 09/711,134
PRIOR FILING DATE: 2001-11-11
NUMBER OF SEQ ID NOS: 33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1089
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1241
                                                                                                                                                                                                                                                                                                                                             1472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             975
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          915
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GLASFRISGIKSWDRAP-----TFIREL-------SDETVV 1117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SQSEEQQEARAESPLPQVSARPVPEVGRAPTRSSP-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŚLĠĠRĠĠYÁGVAGYĠTFAFGGDÁĠ-----GMLGQGPMWARIÁWAVŚQSEEEEQEEARAE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ÁLKGLRHPHLAQLHAÁYLSPRHÍVLILEL--CSGPELLPCLAE-RÁSYSESEVKDYLWOM 1417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OGRSAQPLPSTKTFAFQTQ1QRGRFSVVRQCWEKASGRALAAK11PYHPKDKTAVLREYE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LAAATTAVYEAMTAVDTEAVWLLQGWLFQHQPQFWGPAQIRAVLGAVPRG--RLLVLDLF 384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SRSLFHFPG----RHLPLDEPAELGLRERVKASVEHISRILKGRPEGLEKEGPP---RKKP
                                                                                                                                                                                                                                                                                                                                                                                                                            LSATQYLHNQHI LHLDLRSENMI I TEYNLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                RAAA-----VSEAEADFYEQN---SRYQLTLWGPEGNILDYANKQLAGLVANYYTPRWRL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RGHNRSPLVRRPSLQMNTSIWYNR-SDVFEAWRLLLTSAPSLATSPAFRYDLLDLTR--Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WRLLLRSVYNC-----SGEAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AESOPVYTRTASFOGOPFIWCMLHNFGGNHGLFGALEAVNGGPEAARLFPNSTMVGTGMA 444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LGQSVTLACQVSAQPAAQATWSKDGAPLE-----SSSRVLISATLKNFQLLTILVVV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LPPSWHIKQLYLQHRVLDQMRSFGMTPVLPAFAGHV-----PEAVTRVFPQVNVTKMG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             QPEPPSPMAEEELAEFPEPTWPWPGELGPHAGLEITEESEDVDALLAEAAVGRKRKWSSP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DIGQVSLVQIRDLSGDAEAADTISLDISEVDPAYLNLSDLYDIKYLPFEFMIFRKVPKSA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SLGG-GGAARVRVRGSTGVAAAAGLHRYLRDFCG-----CHVAWSGSQLR------
                                                                                                                                                                                                                                                                                                                                           YLETMAPELLEGOGAVP-----QTDIWAIGVTAFIMLSAEYPVSSEG
                                                                                                                                                                                                                                                                                                                                                                                   FLEALVDSVAQG----IPFQQHQFDKNVFQL-EQAFVLSKQRYPSQPRG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AVQELVSLYYEEARSAYLS-KELASLIRAGGVLAYELLPALDEVLASDSRFILGSWLEQA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WTTLASDIFDCCYLTSKLSRGGTYTFRTACVSKAGMGPYSSPSEQVLLGAPSHLASEEES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PEGISONEVVYSLMAELGWRKDPVPD-----LAAW--VTSFAARRYGVSHPDAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SWGHFNCSYSCSFLLAPEDPIFPIIGSLFLRELIKEFGTDHIYGADTFNEMQPPSSEPSY 326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 --GLTQAEINEF-----FTGP------AFLAWGRMGNLHTWDGP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ------LP----RPLPAVPGELTEATPNRYRYYQNVCTQSYSFVWWDWARWE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -----KAER--PSSS-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REI--DWMALNGINLAL----AWSGQEAIWQRVYLAL--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      --PCPDIGEVYADGVLLVWKPVESYGPVTYIVQCSLEGGS 1240
                                                                                                                                                                                                                                                                                                                                                                                                                            ----KVVDLGNAQSLSQEKVLPSDKFKD
                                                                                                                                             KINASE PH
                                                                                                                                             PROTEINS,
                                                                                                                                                                                                                                                                                                                                                                                     721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -EPTPWE
                                                                                                                                               AND
                                                                                                                                                                                                                                                                                                                                                                                                                              1471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1034
                                                                                                                                               USES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                566
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1088
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         914
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      873
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-09-858-664A-2
                                                                밁
                                                                                                δ
                                                                                                                                             닭
                                                                                                                                                                               5
                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                        片
                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                     片
                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  뭕
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; SOFTWARE: FastSEQ i
; SEQ ID NO 2
; LENGTH: 1665
; TYPE: PRT
; ORGANISM: Homo say
      RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
Matches 165; Conserv
      12
                                                                                                                                                                                                                            1416
                                                                                                                                                                                                                                                                                                        1356
                                                                                                                                                                                                                                                                                                                                                                                     1296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1030
                                                                                                                                                                                                                                                                                                                                                                                                                              494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        970
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       929
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   815
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GLASFRISGIKSWDRAP-----TFIREI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LPPSWHIKQLYLQHRVLDQMRSFGMTPVLPAFAGHV-----PEAVTRVFPQVNVTKMG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QPEPPSPMAEEELAEPPEPTWPWPGELGPHAGLEITEESEDVDALLAEAAVGRKRKWSSP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DIGQVSLVQIRDLSGDAEAADTISLDISEVDPÄYLNLSDLYDIKYLPFEFMIFRKVPKSA 1029
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ----AWSGQEAIWQRVYLAL----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SLGG-GGAARVRVRGSTGVAAAAGLHRYLRDFCG-----CHVAWSGSQLR--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GSASQASSSQVSSLRVGSSQVGTEPGPSLDAEGWTQEAEDLSDSTPTLQRPQEQVTMRKF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGAAGDEAREAAAVRALVARL-LGPGPAAD---FSVSVERALAAKPGLD-----TY
                                                                                                                                             LSATQYLHNOHILHLDLRSENMIITEÝNLL
                                                                                                                                                                                                                                                                                                      QGRSAQPLPSTKTFAFQTQIQRGRFSVVRQCWEKASGRALAAKIIPYHPKDKTAVLREYE
                                                                                                                                                                                                                                                                                                                                               RGHNRSPLVRRPSLQMNTSIWYNR-SDVFEAWRLLLTSAPSLATSPAFRYDLLDLTR--Q
                                                                                                                                                                                                                                                                                                                                                                                        WTTLASDIFDCCYLTSKLSRGGTYTFRTACVSKAGMGPYSSPSEQVLLGGPSHLASEEES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PEGISQNEVVYSLMAELGWRKDFVPD-----LAAW--VTSFAARRYGVSHPDAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LGQSVTLACQVSAQPAAQATWSKDGAPLE-----SSSRVLISATLKNFQLLTILVVV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LAAATTAVYEAMTAVDTEAVWLLQGWLFQHQPQFWGPAQIRAVLGAVPRG--RLLVLDLF 384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SQSEEQQEARAESPLPQVSARPVPEVGRAPTRSSP----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -----LP----RPLPAVPGELTEATPNRYRYYQNVCTQSYSFVWWDWARWE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SLGGRGGYAGVAGYGTFAFGGDAG-----GMLGQGPMWARIAWAVSQSEEEEQEEARAE
                                                                YLETMAPELLEGQGAVP-----QTDIWAIGVTAFIMLSAEYPVSSEG
                                                                                                      FLEALVDSVAQG----IPFQQHQFDKWVFQL-EQAFVLSKQRYPSQPRG
                                                                                                                                                                                   RAAA----VSEAEADFYEON---SRYQLTLWGPEGNILDYANKQLAGLVANYYTPRWRL
                                                                                                                                                                                                                                                                AVQELVSLYYEEARSAYLS-KELASLLRAGGVLAYELLPALDEVLASDSRFLLGSWLEQA
                                                                                                                                                                                                                                                                                                                                                                                                                              WRLLLRSVYNC---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AEDLGVYT-----CSVSNALGTVTTTGVLR-----KAER--PSSS-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AESOPVYTRTASFOGOPFIWCMLHNFGGNHGLFGALEAVNGGPEAARLFPNSTMVGTGMA 444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SWGHFNCSYSCSFLLAPEDPIFPIIGSLFLRELIKEFGTDHIYGADTFNEMQPPSSEPSY 326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SRSLFHFPG---RHLPLDEPAELGLRERVKASVEHISRILKGRPEGLEKEGPP---RKKP
                                                                                                                                                                                                                         ALKGLRHPHLAQLHAAYLSPRHLVLILEL--CSGPELLPCLAE-RASYSESEVKDYLWQM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -----GLTQAEINEF-----FTGP------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3.0%; Score 118.5; DB 9; Length 1665; milarity 18.6%; Pred. No. 0.54; Conservative 97; Mismatches 307; Indels 319;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  for Windows
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ----PCPDIGEVYADGVLLVWKPVESYGPVTYIVQCSLEGGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Version 4.0
                                                                                                                                               --KVVDLGNAQSLSQEKVLPSDKFKD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ----- SDETVV 1172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  --AFLAWGRMGNLHTWDGP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----EPTPWE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps 40
                                                                                                                                                                                                                                                                                                                                                                                                                                  SGEAC
                                                                                                                                                   1526
                                                                                                                                                                                       677
                                                                                                                                                                                                                              1472
                                                                                                                                                                                                                                                                    625
                                                                                                                                                                                                                                                                                                           1415
                                                                                                                                                                                                                                                                                                                                                   566
                                                                                                                                                                                                                                                                                                                                                                                          1355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     874
                                                                                                                                                                                                                                                                                                                                                                                                                                  605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1089
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         928
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            65
```

Ş 밁 Ś 밁 Ş 밁 Ś 망 Ś 밁 δ 뭐 δ g Ş 몂 δ 밁 δ B Š 밁 S В 5 밁

吊

2457

677

```
APPLICANT: SCIOS, INC.
APPLICANT: SCIOS, INC.
TITLE OF INVENTION: MEDIATORS OF SIGNAL TRANSDUCTION
FILE REFERENCE: SCIOS.021DV1
CURRENT APPLICATION NUMBER: US/10/307,019
CURRENT FILING DATE: 2002-11-26
PRIOR APPLICATION NUMBER: 09/548,473
PRIOR FILING DATE: 2000-04-13
PRIOR PILING DATE: 2000-04-16
NUMBER OF SEQ ID NOS: 9
NUMBER OF SEQ ID NOS: 9
SEQ ID NOS: 9
SEQ ID NO 6
LENGTH: 2596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          윰
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; TYPE: PRT ; ORGANISM: Homo sapiens US-10-307-019-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-10-307-019-6
                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             뮍
                    S
                                                           밁
                                                                                            Ś
                                                                                                                                      밁
                                                                                                                                                                         Ś
                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 6, Application US/10307019
Publication No. US20030108533A1
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches 165;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity 18.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Zeng, Wenlin
APPLICANT: Stanton, Lav
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1806
                                                                                                                                                                                                                2156
                                                                                                                                                                                                                                                                                            2104
                                                                                                                                                                                                                                                                                                                                                                      2075
                                                                                                                                                                                                                                                                                                                                                                                                                                                   2021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              152
                                                                                                  494
                                                                                                                                                                             445
                                                                                                                                                                                                                                                     385
                                                                                                                                                                                                                                                                                                                                 327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               19 GGAAGDEAREAAAVRALVARL-LGPGPAAD---FSVSVERALAAKPGLD-----TY
                                                                                                                                                                                                                                                                                                                                                                                                                                                 SRSLFHFPG---RHLPLDEPAELGLRERVKASVEHISRILKGRPEGLEKEGPP---RKKP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OPEPPSPMAEEELAEFPEPTWPWPGELGPHAGLEITEESEDVDALLAEAAVGRKRKWSSP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DIGQVSLVQIRDLSGDAEAADTISLDISEVDPAYLNLSDLYDIKYLPFEFMIFRKVPKSA 1960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SIGGRGGYAGVAGYGTFAFGGDAG-----GMLGQGPMWARIAWAVSQSEEEEQEEARAE 1859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GSASQASSSQVSSLRVGSSQVGTEPGPSLDAEGWTQEAEDLSDSTPTLQRPQEQATMRKF
                                                         WITHASDIFDCCYLTSKLSRGGTYTFRTACVSKAGMGPYSSPSEQVILGAPSHLASEEES 2286
                                                                                                                                                                                                                                                                                                                                                                                                           SWGHFNCSYSCSFLLAPEDPIFPIIGSLFLRELIKEFGTDHIYGADTFNEMQPPSSEPSY 326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SQSEEQQEARAESPLPQVSARPVPEVGRAPTRSSP------EPTPWE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SIGG-GGAARVRVRGSTGVAAAAGLHRYLRDFCG----CHVAWSGSQLR-----
RGHNRSPLVRRPSLQMNTSIWYNR-SDVFEAWRLLLTSAPSLATSPAFRYDLLDLTR--Q
                                                                                                                                                                                                                                                                                          LGQSVTLACQVSAQPAAQATWSKDGAPLE-----SSSRVLISATLKNFQLLTILVVV
                                                                                                                                                                                                                                                                                                                                 LAAATTAVYEAMTAVDTEAVWLLQGWLFQHQPQFWGPAQIRAVLGAVPRG--RLLVLDLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LPPSWHIKQLYLQHRVLDQMRSFGMTPVLPAFAGHV-----PEAVTRVFPQVNVTKMG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Stanton, La
SCIOS, INC.
                                                                                                  WRLLLRSVYNC-
                                                                                                                                                                           PEGISQNEVVYSLMAELGWRKDPVPD------LAAW--VTSFAARRYGVSHPDAGAA 493
                                                                                                                                                                                                                AEDLGVYT-
                                                                                                                                                                                                                                                     AESQPVYTRTASFQGQPFIWCMLHNFGGNHGLFGALEAVNGGPEAARLFPNSTMVGTGMA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -GLTQAEINEF-----FTGP------AFLAWGRMGNLHTWDGP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ---REI--DWMALNGINLAL----AWSGQEAIWQRVYLAL------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Lawrence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LP----RPLPAVPGELTEATPNRYRYYQNVCTQSYSFVWWDWARWE 151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; Score 118.5; DB 15; ; Pred. No. 1.1; 97; Mismatches 307;
                                                                                                                                                                                                                  - CSVSNALGTVTTTGVLR-----KAER--PSSS-----
                                                                                                                                          --PCPDIGEVYADGVLLVWKPVESYGPVTYIVQCSLEGGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 2596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      319;
                                                                                                                                                                                                                                                                                                                                                                        SDETVV 2103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                  SGEAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1805
                                                                                                                                          2226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2020
                        566
                                                                                                                                                                                                                  2188
                                                                                                                                                                                                                                                         444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                          밁
                                                           Ś
                                                                                                                                      Ś
                                                                                                                                                                               뮍
                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                     片
                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                ₽,
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ; ORGANISM: Homo US-10-077-130-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 13
US-10-077-130-2
                                                                                                       밁
                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 2, Application US/10077130 Publication No. US20020168742A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOFTWARE: I
SEQ ID NO 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches 165;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Kapeller-Libermann, Rosana
APPLICANT: Acton, Susan L.
APPLICANT: Acton, Susan L.
TITLE OF INVENTION: 59079 and 12599, Protein Kinase
TITLE OF INVENTION: Members and Uses Therefor
FILE REFERENCE: MPIZO01-047PIRCP1(M)
CURRENT APPLICATION NUMBER: US/10/077,130
CURRENT FILING DATE: 2002-02-15
CURRENT FILING DATE: 2002-02-15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION NUMBER: 60/269201
PRIOR FILING DATE: 2001-02-15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NUMBER OF SEQ ID NOS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2287
                                                                                                                                                                                                                                                             1995
                                                                                                                                                                                                                                                                                                                                                                                                                  1894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1780 GSASQASSSQVSSLRVGSSQVGTEPGPSLDAEGWTQEAEDLSDSTPTLQRPQEQATMRKF 1839
                            2138 LGQSVTLACQVSAQPAAQATWSKDGAPLE---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       567
                                                                                                                                                                                                                                                                                                                                     1935
                                                                                                                                                                                                                      214
                                                                                                                                                                                                                                                                                                                                                                          152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       19 GGAAGDEAREAAAVRALVARL-LGPGPAAD---FSVSVERALAAKPGLD-----TY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2630
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FastSEQ for Windows Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ALKGIRHPHLAQIHAAYISPRHIVLILEI--CSGPELLPCLAE-RASYSESEVKDYLWOM 2403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AVQELVSLYYEEARSAYLS-KELASILRAGGVLAYELLPALDEVLASDSRFILGSWLEQA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          QGRSAQPLPSTKTFAFQTQIQRGRFSVVRQCWEKASGRALAAKIIPYHPKDKTAVLREYE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              YLETMAPELLEGQGAVP-----QTDIWAIGVTAFIMLSAEYPVSSEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FLEALVDSVAQG---IPFQQHQFDKNVFQL-EQAFVLSKQRYPSQPRG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LSATQYLHNQHILHLDLRSENMIITEYNLL-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RAAA----VSEAEADFYEQN---SRYQLTLWGPEGNILDYANKQLAGLVANYYTPRWRL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SIGGRGGYAGVAGYGTFAFGGDAG-----GMIGQGPMWARIAWAVSQSEEEEQEEARAE 1893
                                                                                                                                                                                                                  LPPSWHIKQLYLQHRVLDQMRSEGMTPVLPAFAGHV-----PEAVTRVEPQVNVTKMG 266
                                                                                                                                                                                                                                                         QPEPPSPMAEBELAEFPEPTWPWPGELGPHAGLEITEESEDVDALLAEAAVGRKKKWSSP 2054
                                                                                                                                                                                                                                                                                                                                                                                                                SQSEEQQEARAESPLPQVSARPVPEVGRAPTRSSP-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SLGG-GGAARVRVRGSTGVAAAAGLHRYLRDFCG-----CHVAWSGSQLR---
                                                               LAAATTAVYEAMTAVDTEAVWLLQGWLFQHQPQFWGPAQIRAVLGAVPRG--RLLVLDLF 384
                                                                                                                                          SWGHFNCSYSCSFLLAPEDPIFPIIGSLFLRELIKEFGTDHIYGADTFNEMQPPSSEPSY 326
                                                                                                                                                                                 SRSLFHFPG----RHLPLDEPAELGLRERVKASVEHISRILKGRPEGLEKEGPP----RKKP
                                                                                                                                                                                                                                                                                                                                     DIGQVSLVQIRDLSGDAEAADTISLDISEVDPAYLNLSDLYDIKYLPFEFMIFRKVPKSA 1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sapiens
                                                                                                                                                                                                                                                                                                                                                                        ---REI--DWMALNGINLAL----AWSGOEAIWQRVYLAL--------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   18.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                     LP----RPLPAVPGELTEATPNRYRYYQNVCTQSYSFVWWDWARWE 151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                97;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 118.5;
Pred. No. 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 14;
                            ---SSSRVLISATLKNFQLLTILVVV 2189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -KVVDLGNAQSLSQEKVLPSDKFKD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 2630;
                                                                                                                                                                                                                                                                                                    - AFLAWGRMGNLHTWDGP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     319;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2499
```

---EPTPWE

182 1934 Gaps

65 40;

109

--SDETVV 213:

2108

213

Query Match Best Local Similarity 18.6%; Pred. No. 5.8; Matches 165; Conservative 97; Mismatches 307; Indels 319; Gaps 40; Qy 19 GGAAGDEAREAAAVRALVARL-LGPGPAADFSVSVERALAAKEGLD	CURRENT FILING DATE: 2002-02-15 PRIOR APPLICATION NUMBER: 60/269201 PRIOR FILING DATE: 2001-02-15 NUMBER OF SEQ ID NOS: 9 SOFTWARE: FastSEQ for Windows Version 4.0 SEQ ID NO 5 LENGTH: 7968 TYPE: PRT ORGANISM: Homo sapiens US-10-077-130-5	GENERAL INFORMATION: APPLICANT: Kapeller-Libermann, Rosana APPLICANT: Acton, Susan L. APPLICANT: Acton, Susan L. TITLE OF INVENTION: 59079 and 12599, Protein Kinase Family TITLE OF INVENTION: Members and Uses Therefor FILE REFERENCE: MPIZOO1-04PPIRCPI (M) FILE REFERENCE: MPIZOO1-04PPIRCPI (M) CURRENT APPLICATION NUMBER: US/10/077,130	RESULT 14 US-10-077-130-5 ; Sequence 5, Application US/10077130 ; Publication No. US20020168742A1	626 RAAAVSEAEADFYEQNSRYQLTLWGPEGNILDYANKQLAGL	Db 2321 OGRSAQPLPSTKTFAFQTQİQBGRFSVVRQCWEKASGRALAAKIIPYHPKDKTAVLREYE 2380 Qy 567 AVQELVSLYYEEARSAYLS-KELASLLRAGGVLAYELLPALDEVLASDSRFLLGSWLEQA 625	Qy 494 WRLLLRSVYNCSGEAC 509	Qy 385 AESQPVYTRTASFQGQPFIWCMLHNPGGNHGLFGALEAVNGGPEAARLFPNGTWVGTGMA 444
	Db 7830 YLETMAPELLEGOGAVPQTDIWAIGVTÄFIMLSAEYPVSSEG 7871 RESULT 15 US-09-820-788-4 US-09-820-788-4 ; Sequence 4, Application US/09820788 ; Publication No. US20030166182A1 ; GENERAL INFORMATION: ; GENERAL INFORMATION: ; TITLE OF INVENTION: ISOLATED HUMAN DRUG-METABOLIZING	626 RAAAVSBAEADFYEONSRYQLTLWGPEGNILDYANKQLAGLVANYYTPRWRL 	Qy 510 KGHNRSEUVRRESLOMMISIWHAN SUVEEAWRLLITSASLATSFAKKYLLDIHKQ 566	7561SCELEGGS 494 WRLLLRSVYNCSEAC	Qy 385 AESQPVYTRTASFQGQPFIWCMLHNFGGNHGLFGALEAVNGGPBAARLFPNSTMVGTGMA 444	Db 7447 GLASFRLŠGLKSWDRAPTFLRELSDETVV 7475 OY 327 LAAATTAVYEAMTAVDTEAVWLLQGWLFQHQPQFWGPAQIRAVLGAVPRGRLLVLDLF 384 OF STATE OF STAT	OD 7333 QPEPPSPMAEEELAEFPEPTWPWPGELGPHAGLEITEESEDVDALLAEAAVGRKRKWSSP 7392 QY 214 LPPSWHIKQLYLQHRVLDQMRSFGMTPVLPAFAGHVPEAVTRVFPQVNVTKMG 266 Db 7393 SRSLFHFPGRHLPLDEPAELGIRERVKASVEHISRILKGRPEGIEKEGPPRKKP 7446 QY 267 SWGHFNCSYSCSFLLAPEDPIFPIIGSLFLRELIKGFGTDHIYGADTFNEMOPPSSEPSY 326

: :